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SCHICK REACTION

WITH A REPORT OF EIGHT HUNDRED TESTS

HERMAN N. BUNDESEN, M.D.

Supervising Medical Inspector, Department of Health

CHICAGO

Systematic observations by numerous workers, notably among them Schick[1] of Vienna and Park[2] of New York, indicate that the blood serum of about 80 per cent. of the new-born, from 50 to 60 per cent. of children and 90 per cent. of adults contains sufficient diphtheria antitoxin to make them insusceptible to diphtheria, and hence makes it unnecessary for them to receive a prophylactic injection of diphtheria antitoxin. Experience bears out this statement.[3]

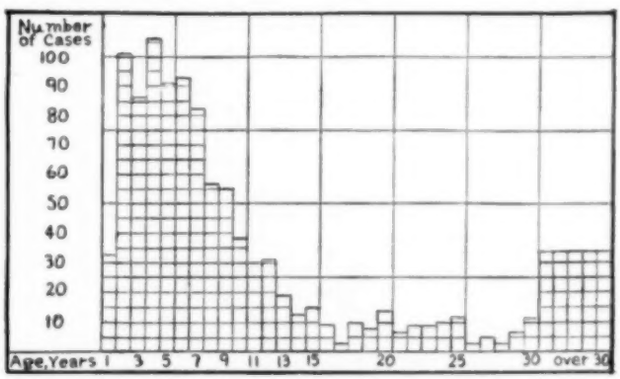

Chart 1.—Distribution of ages in 1,000 cases of diphtheria reported to the Department of Health, Chicago, November and December, 1914. The figures above 30 years are distributed through five periods on chart while in reality it considers all cases above 30 years, hence apparent high percentage.

A practical method for determining whether or not a person is susceptible to diphtheria has recently been devised by Schick[4] while working in von Pirquet's clinic in Vienna. The reaction[4] depends on the local irritant action of minute quantities of diphtheria toxin when injected intracutaneously, in the absence of antitoxin. Schick's results are in accord with those obtained by the more elaborate method of Römer[5] which makes it possible to titrate accurately the amount of antitoxin in the blood serum. Briefly Römer's method consists in the intracutaneous injection in guinea pigs of a definite minute quantity of diphtheria toxin and a definite amount of the serum to be tested for antitoxin. If no necrosis results, the toxin has been completely neutralized by the available antitoxin in the serum.

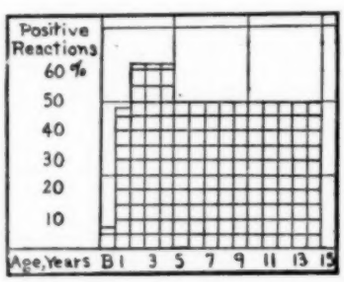

Chart 2.—Per cent. positive Schick reactions (747 tests).

For the carrying out of the Schick tests it is essential to have an accurate 1 c.c. all glass hypodermic syringe, having a scale divided into ten parts, and a short, sharp, fine platinum iridium needle, sufficiently fine to be introduced between the layers of the skin. To introduce the needle, have the opening or beveled aspect of the point looking upward and hold the head of the syringe lower than the point when introducing the needle into the skin.

TECHNIC

The skin of the flexor surface of the forearm (upper one-third) is prepared by cleaning with tincture of green soap and 95 per cent. alcohol. With the thumb and first finger of the left hand pinch up a small portion of the skin and carefully insert the needle into, but not through the skin so the opening in the point of the needle is covered and so the needle can be seen beneath the superficial layer.

A dilution of a fresh standard diphtheria toxin is made of such a strength that 0.1 c.c. contains 1/50 of the minimum lethal dose for a 250-gm. guinea pig, and this is injected, pressure being exerted in an upward direction. If the injection has been properly given, there is to be seen at once a white bleb-like elevation which persists for several minutes and is distinctly studded with little pits corresponding to the opening of the hair follicles.

RESULTS

The results are available at the end of twenty-four hours. If antitoxin is absent or present only in very small amounts—insufficient for protection—a positive reaction appears, which is characterized by a constantly increasing circumscribed area of redness (halo) and induration of from 10 to 25 mm. in

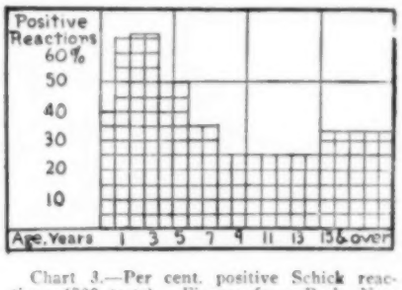

Chart 3.—Per cent. positive Schick reactions (700 tests). Figures from Park, New York. Figures above 14 years are distributed through five periods on chart; in reality it considers all cases above 14 years, hence the apparent high percentage.

1. Schick, B.: Die Diphtherietoxin-Hautreaktion des Menschen als Vorprobe der prophylaktischen Diphtherieheilsseruminjektion, München. med. Wchnschr., Nov. 25, 1913, p. 2608.
2. Park, Zingher and Serota: Schick Reaction and Its Practical Applications, Arch. Pediat., xxxi, No. 7, p. 481.
3. Schick: Experimentelle Diphtherieserumtherapie beim Menschen, Ztschr. f. d. ges. exper. Med., July, 1914, p. 83.
4. Park and Zingher: Proc. New York Path. Soc., October, 1914.
5. Otto, R.: Ueber den Gehalt des Blutes an Diphtherie Antitoxin bei gesunden Erwachsenen, Rekonvaleszenten und Bazillentragern, Deutsch. med. Wchnschr., March 12, 1914, p. 542.

diameter that reaches its maximum in forty-eight hours. It persists for about a week, and on fading shows a brownish pigmentation with superficial scaling and a characteristic central infiltration.

Positive reactions indicate that there is less than 1/30 unit of antitoxin in 1 c.c. of blood serum. Such persons are susceptible to diphtheria. Though intensity of the reaction varies in different individuals, a well-marked redness indicates a complete or almost complete absence of diphtheria antitoxin. Faint reactions point to the presence of small amounts of antitoxin.

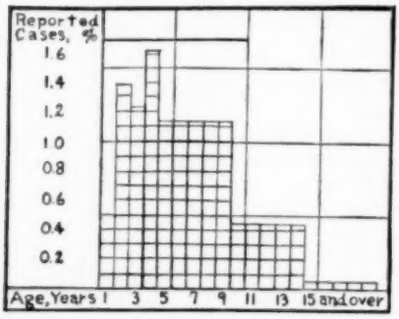

Chart 4.—Percentage of diphtheria cases reported to the Department of Health, Chicago, by ages or groups of ages. Percentage obtained by dividing actual cases at age or group of ages by estimated number of persons living at that age, based on the distribution of population by ages (U. S. Census, 1910).

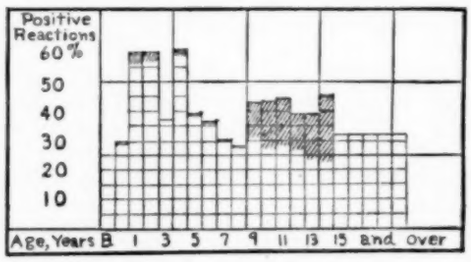

Chart 5.—Per cent. positive Schick reactions (800 tests). From figures of Chicago Health Department. Shaded area indicates faintly positive cases. Figures above 14 years are distributed through five periods on chart; in reality it considers all cases above 14 years, hence apparent high percentage.

The researches of Loos, Karasawa, Schick and others have proved that there are no protective bodies (antibodies) against diphtheria in the blood serum of children taken sick with diphtheria; that those persons taken sick prior to injection with antitoxin always give a positive skin reaction, while the negative intracutaneous reaction always proves the existence of protective bodies in sufficient numbers for prophylaxis against diphtheria toxins.

SCHICK REACTIONS IN EIGHT HUNDRED CASES

Years of Age	Number of Cases			Per Cent. Positive
	Total	Positive	Negative	
New born	5	1	4	20
During first year	55	16	39	29
1	10	6	4	60
2	20	12	8	60
3	16	6	10	37.5
4	20	11	9	61
5	20	7	13	39
6	19	7	12	37
7	28	9	19	31
8	32	9	23	28
9	39	17	22	43.5
10	77	25	52	43.9
11	87	39	48	44.8
12	113	45	68	39.8
13	129	51	78	39.5
14	85	39	46	45.9
15 and over	45	15	30	33
	800	315	485	39.4

In the fall of 1914, there were discovered among the eighty-seven inmates at the Norwegian Lutheran Childrens' Home, near Chicago, one case of diphtheria and nine "carriers." Conditions were such that an epidemic seemed imminent. It was decided immediately to apply the Schick test. Only those yielding a positive reaction were immunized, with the result that no further cases developed. Thus with a simple, practical test, available to every physician, an epidemic was promptly and completely suppressed in an orderly manner.

This instance is but one of a number making up our eight hundred tests and demonstrates conclusively the possibilities of this reaction.

We note that in eight hundred persons 60 per cent. are possessors of antibodies in sufficient numbers to make a prophylactic injection of diphtheria antitoxin superfluous.

No case of diphtheria has developed in those showing a negative Schick reaction, and we feel perfectly safe in leaving a case showing a negative result without prophylactic inoculation, no matter how intimately exposed.

In regard to the new-born, their high percentage of immunity is undoubtedly accounted for by the fact that the colostrum and even the milk of nursing mothers to a certain degree is antitoxic. Park concludes that infancy is protected from most of the common communicable diseases through this absorption from the colostrum during the first days of life.

Of those cases showing a negative result, 8 per cent. had diphtheria at some previous time, while 23 per cent. of those yielding a positive reaction had suffered from diphtheria. Ott's researches confirm the assumption that a single attack of diphtheria does not cause sufficient antitoxin production to produce lasting immunity.

Of the forty-four "carrier" cases, 70 per cent. were negative and 30 per cent. showed a very faint reaction. Not one frankly positive occurred among the forty-four cases. Bacillus "carriers" invariably have a high antitoxin proportion and depend on this factor for immunity. This is why they are "carriers" and not true cases of diphtheria.

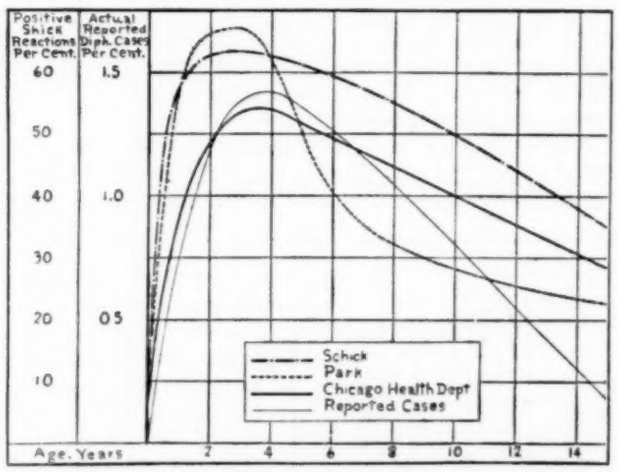

Chart 6.—Comparison of Schick, Park and Chicago Department of Health figures as to per cent. positive of Schick reactions and percentage of actual reported diphtheria cases according to age.

A fact which is worthy of note is that we found that children of the same family invariably gave a similar reaction. They were either all negative or all positive.

CONCLUSIONS

By means of the Schick test we are in a position to tell definitely who is susceptible to diphtheria and when an epidemic breaks out can inject those and those only, paying no further attention to the ones giving a negative reaction.

By it the danger of cross-infection is greatly decreased. Children with diphtheria that have had scarlet fever and are therefore immune from scarlet fever can be placed in scarlet fever wards when the inmates yield negative Schicks, etc.

It permits a great reduction in antitoxin bills. Much needless pain and annoyance of patients is avoided, and the possibility of anaphylactic shock is greatly minimized.

City Hall.

SOME OBSERVATIONS OF THE SCHICK TEST

CHARLES GRAEF, M.D.
AND
GEORGE GINSBERG, M.D.
NEW YORK

Among the studies which have, from time to time, helped us toward a better understanding and more effective treatment of nose and throat conditions, those concerned with diphtheria command a prominent place. The introduction of antitoxin of course revolutionized the treatment of this disease, and numerous investigations of its value, dosage, possible sequelae, the immunity produced, etc., have since added much to the literature of the subject.

A feature of especial interest and value which stands out among these is the fact, now well established, that certain persons have a natural immunity to diphtheria and will not take it, however much exposed. Many of these, indeed, become carriers of the Klebs-Loeffler bacilli, and infect others, although themselves safe from the disease.

Finding the diphtheria organism in the throats of such persons is of uncertain diagnostic value unless supplemented by a test to show whether immunity is present or absent. In such cases sore throats due to other organisms may easily be confounded with diphtheria, the diagnosis being established by the laboratory finding the Klebs-Loeffler organisms.

These are among the cases which puzzle and worry the doctor. He finds, for instance, a case of slight tonsillitis (clinically), sends a swab for examination, ordering a mild gargle and perhaps an iron mixture meantime; back from the laboratory comes the report, "Diphtheria positive," and he hurries back to his patient with antitoxin only to find that in the brief interval everything has cleared up and the patient appears normal. The next patient showing a similar picture he decides to treat in the same way, but in place of clearing up it progresses to a virulent case of diphtheria in which he now finds himself disappointed in the use of antitoxin, late injections of this being of comparatively less value.

From such experiences he argues that either the laboratory is of little use to him, or antitoxin is an overrated remedy; or still more likely, concludes that thereafter whenever there is the possibility of diphtheria being present he will do best to inject promptly the antitoxin and not wait for any laboratory report. He feels that the injection will do no harm, and if it turns out to be diphtheria he has gained so much in time and effect. In the last he is certainly right, and yet every medical man would prefer to avoid the use of this remedy in any case in which he might safely do so.

The Schick[1] test for immunity offers a promising aid in this matter. If by a simple injection into the skin we can determine who is, and who is not, liable to infection, a long step is taken toward simplifying the handling of these situations.

1. The use of immunizing doses of antitoxin will not be necessary if persons exposed to infection are found to be naturally immune.

2. Even when bacilli are found in the throats of such persons, no injection of antitoxin need be given when they suffer from tonsillar or other pharyngeal infections.

3. Nurses in institutions, when proved immune, can safely care for diphtheria patients while susceptible nurses are kept away and employed on other cases.

4. Much aid can be had in solving the puzzle of why one patient recovers without antitoxin while the next, apparently an exact counterpart, dies in spite of the use of this valuable remedy.

Park[2] has given an interesting and very complete description of the Schick test, its technic, etc., and for the benefit of the reader who has not access to such information part of the matter is included here.

It has been shown that only persons who have either no antitoxin or but a minute amount in their blood and tissue are liable to contract diphtheria. With this fact before us we have but to estimate the amount of antitoxin present in any individual to know whether he will be safe from infection or liable to it if exposed.

Methods of doing this previously proposed have been too troublesome for practical use, but Schick's test is at once simple and safe, and seems to be reliable.

It is not more difficult to make than the Pirquet test made with tuberculin for tuberculosis, and consists of the intracutaneous injection of a prepared solution containing minute quantities of diphtheria toxin. This will produce a positive reaction in twenty-four or forty-eight hours if antitoxin is absent, or present in amount insufficient for protection.

The reaction consists of redness and slight swelling over the injected area. It continues for a week or more and leaves a brownish pigmentation with superficial scaling for a time after this.

In a small percentage of older children and adults there is a pseudoreaction even when large amounts of antitoxin are present, and these must be carefully distinguished from the true reactions.

The pseudoreaction can be recognized by its earlier appearance, its less sharply circumscribed form, greater infiltration, and the fact that it disappears in twenty-four hours or two days at the latest. The spot is less pigmented later, and superficial scaling is not noted. The directions for making the test are as follows:

An accurate syringe with a sharp but short-pointed, fine needle is necessary. The usual 1 c.c. record tuberculin syringe with a fine platinum iridium needle serves well.

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1. Schick: Spezifische Therapie der Diphtherie, Centralbl. f. Bacteriol., 1913, lvii, Part 1; Ref., Beiheft, p. 16; Die Diphtherietoxin-Hautreaktion des Menschen als Vorprobe der Prophylaktischen Diphtherieheilserum-injektion, München. med. Wchnschr., 1913, lx, 2608.

2. Park, W. H., and Zingher, Abraham: Practical Applications Obtained from the Schick Reaction, Proc. New York Path. Soc., October, 1914. Park, W. H.; Zingher, Abraham, and Serota, H. M.: The Schick Reaction and its Practical Applications, Arch. Pediat., July, 1914.

A standard diphtheria toxin is diluted at first 1:10, in 0.5 per cent. phenol (carbolic acid); this dilution will keep in the ice box for at least two weeks. Park advises care in securing a proved quality of toxin. The diphtheria toxins provided for this purpose by the commercial houses have not proved reliable. For use, further dilutions are now made in normal saline, of such strength that 0.1 c.c., or as stated above, 0.2 c.c., contains $\frac{1}{50}$ minimum lethal dose for the guinea pig. This amount is injected intracutaneously on the flexor surface of the arm or forearm.

The intensity of the reaction varies in different individuals, but a well-marked redness indicates an almost complete absence of antitoxin. Faint reactions point to the presence of a very small amount of antitoxin, not sufficient to protect against diphtheria. To prevent the appearance of the reaction, according to Schick, at least $\frac{1}{30}$ unit of antitoxin per cubic centimeter of blood is required. This amount he considers sufficient to protect against diphtheria. According to von Behring, even as little as $\frac{1}{100}$ unit of antitoxin will protect against the disease in uncomplicated cases.

The following tests were made in Lincoln Hospital, New York, and were begun because of a troublesome outbreak of diphtheria among the nurses in December, 1914, which continued to crop out at intervals through the following January; 0.2 c.c. were used for each injection.

The nurses were colored women ranging from 25 to 35 years of age.

Seven had no history of diphtheria, or of having had antitoxin. Three gave Schick positive; four, Schick negative.

Five cases had clinical diphtheria within six weeks of the test; all gave a negative Schick.

Eleven cases were isolated because the Klebs-Loeffler bacilli were found in the throat. They all gave a negative Schick and did not develop clinical diphtheria. They were given local treatment for the throat, and repeated cultures were made. Two gave a positive culture once. Two gave a positive culture twice, and the other seven gave more than two positive cultures.

Twelve cases had no diphtheria, but had immunizing doses of antitoxin within six weeks of the test. Ten were Schick negative; two were Schick positive.

Three cases had diphtheria from eight to ten years previously. Two were Schick positive and one was Schick negative.

Eighteen children ranging in age from 3 weeks to 5 years were also tested. These patients were in the hospital for a variety of causes: feeding, intestinal troubles, hernia, pneumonia, fractures, etc.

In nine children under 14 months, three were Schick negative and six Schick positive. In nine children from 14 months to 5 years, two were Schick negative and seven Schick positive.

None of the children had had diphtheria or antitoxin.

Twenty-six patients, adults, were also tested. Eighteen gave a positive Schick and eight a negative Schick. One of the negative cases had received antitoxin a month previous. So far as these tests were carried, they confirm the findings of Schick, Park and others.

CONCLUSIONS

1. The most susceptible age is between 1 and 5 years.

2. Immunity obtained by having the disease or by the use of immunizing doses of antitoxin lasts from a month to several years, varying greatly in different individuals and being very brief in children.

3. The Schick test is a helpful agent in testing the efficiency of immunization by antitoxin as well as the natural immunity existing in many persons.

4. It has helped to place on more certain grounds the assurance that bad cases of diphtheria should receive early and large doses of antitoxin by intravenous injections. Antitoxin is ten times as effective when so used, as compared with the ordinary method of administration.

5. Park has obtained results in families showing a striking similarity in reactions to the test. If the youngest child of a family has a negative reaction, all the older children are likely to be negative, and if the older children are positive, the younger ones are also. When variations are found, the younger children show the positive reaction.

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THE INTRADERMIC DIPHTHERIA TOXIN TEST *

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It has been known for some time that a certain percentage of persons have antitoxin to diphtheria in their blood, and that only those individuals whose natural immunity is low, or who have no natural immunity whatever, are susceptible to the disease. Römer designed a biologic test for estimating the quantity of antitoxin in the blood, but it was too tedious and cumbersome to be of practical use. In 1909, Schick conceived the idea of using diphtheria toxin in the manner employed by von Pirquet for the use of tuberculin in the diagnosis of infection with the tubercle bacillus in children, and he found, by running controls by the Römer method, that individuals who reacted to the toxin were susceptible to diphtheria while those giving negative tests were immune. Somewhat later, in order to control the amount of toxin absorbed, he began using intracutaneous injections and found that a negative reaction to 1/50 the minimum lethal dose for a 250 gm. guinea pig indicated that the individual had at least 0.031 units of antitoxin per cubic centimeter of blood, which quantity he believes to be sufficient to protect against the development of clinical diphtheria. Von Behring believes that even 1/100 unit of antitoxin per cubic centimeter of blood will protect against the development of the disease, and Park reports the suppression of the Schick test in a 3 year old child weighing 35 pounds, twenty-four hours after the injection of ten units of antitoxin.

Schick, in his work, used 0.1 c.c. of toxin dilution which contains exactly 1/50 the minimum lethal dose, and Park preferred to use 0.2 c.c. We, however, have been using a dilution in which 0.05 c.c. contains 1/50 the minimum lethal dose, as the results seem to be quite as constant and the discomfort accompanying the injection of the smaller quantity is less.

The positive reaction which indicates the absence of antitoxin in the blood appears in twenty-four hours as a circumscribed hyperemic, indurated area, usually becomes most marked in forty-eight hours, persists for from a week to ten days and heals by central brownish pigmentation and scaling which clears up in

* From the Department of Pediatrics of the Washington University Medical School and St. Louis Children's Hospital. Read before the St. Louis Medical Society, Jan. 23, 1915.

from two to three weeks. A "pseudoreaction" has been reported in older children and adults, which does not show the same degree of induration nor the typical scaling and pigmentation. Two patients in the Children's Hospital who gave "pseudoreactions" also showed positive reactions to injections of ordinary bouillon and it seems probable that the reaction may indicate a skin sensitiveness which has no relation whatever to diphtheria toxin.

Table 1 gives our results in 524 cases, none of which had received any form of immunization.

The figures in this table show approximately the same results as Schick and Park obtained. It will be seen that the period of greatest susceptibility to diphtheria is between the first and sixth years. This bears out the clinical experience. The periods of least susceptibility are under one year and over 15, which also corresponds to the clinical experience.

Even recently it has been suggested that the diphtheria toxin reaction might be due to a general reaction to all toxic materials. Intradermic tuberculin reactions are made on all patients entering the St. Louis Children's Hospital, and of the first 180 patients

TABLE 1.—RESULT OF SCHICK TESTS MADE ON NON-IMMUNIZED INDIVIDUALS IN 524 CASES

Age	No. of Cases	Number Positive	Number Negative	Positive, Per Cent.
Under 6 mo..	31	11	20	35.4
From 6 mo. to 1 year	17	5	12	29.6
From 1 to 2 years	36	20	16	55.5
From 2 to 4 years	63	40	23	64.5
From 4 to 6 years	76	43	33	56.5
From 6 to 8 years	115	51	64	44.3
From 8 to 15 years	171	55	96	39.0
Over 15 years	45	12	33	26.6
Total	524	237	287	45.2

who were also tested with diphtheria toxin, only thirty-four gave similar reactions to the two tests.

In order to determine whether or not the negatively reacting individuals were carriers, and owed their antitoxin to an active immunization, cultures were taken on 200 negatively reacting patients, and, in spite of the fact that all of these had been exposed to diphtheria, positive cultures were obtained in only eleven. The knowledge that only a small percentage of negatively reacting persons are carriers and that none of them will develop clinical diphtheria makes the handling of epidemics somewhat easier. A similarity of reactions in families was noted in our cases and by Park. He believes this to indicate that there are factors other than abortive infections with the Klebs-Loeffler bacillus which give rise to the so-called natural immunity.

At the time of a recent epidemic, all patients who were admitted to the wards of the St. Louis Children's Hospital with conditions other than diphtheria and whose Schick test was positive, were given immunizing doses of antitoxin; but a few cases of clinical diphtheria developed from two to four weeks after receiving the antitoxin. We have not seen a case of true clinical diphtheria in negatively reacting individuals.

By making the Schick test at intervals before and after the administration of antitoxin in each of the three methods, subcutaneous, intramuscular and intravenous, we have been able to confirm the work of Schick which shows the greater immediate efficiency of intravenous administration and the relatively greater efficiency of the intramuscular over the subcutaneous injection.

TABLE 2.—RESULT OF SCHICK TESTS TO DETERMINE DURATION OF IMMUNITY*

Age, Years	Number of Cases	Number Positive	Number Negative	Positive, Per Cent.
From 2 to 4..	3	2	1	67—
From 4 to 6.	5	3	2	60
From 6 to 8.	19	4	15	21
From 8 to 15	205	51	154	24.5
Over 15	84	18	66	21
Total	316	78	238	24.5

* These patients all received 1,000 units of antitoxin subcutaneously, four weeks previous to the Schick test.

An opportunity to determine the duration of immunity following the standard immunizing dose of antitoxin, was offered at the St. Louis Industrial School, where, following the development of a few cases of clinical diphtheria, all children received 1,000 units of antitoxin subcutaneously. Four weeks after this antitoxin administration, Schick tests were made on 316 children with the results according to ages as shown in Table 2.

Seventy-eight out of the 316 cases, or 24.5 per cent., reacted positively, which is a little more than one-half the percentage of positive reactions obtained in non-immunized children as shown in Table 1. It will be seen that the relative percentage of positive tests corresponds fairly well, according to ages, with the results in individuals who were not immunized. This seems to indicate that, at any age, the immunity conferred by the usual prophylactic dose of antitoxin is effective for a period of less than four weeks in over half of the cases immunized.

TABLE 3.—RESULT OF TEST WITH ONE-TWENTY-FIFTH MINIMUM LETHAL DOSE ON PATIENTS GIVING NEGATIVE REACTIONS TO ONE-FIFTIETH MINIMUM LETHAL DOSE

Age	Number of Cases	No. Mildly Positive	Number Negative	Positive, Per Cent.
From 1 to 2..	7	1	6	14
From 2 to 4..	4	1	3	25
From 4 to 6..	10	3	7	30
From 6 to 8..	14	4	10	28
From 8 to 15.	20	2	18	10
Total	55	11	44	20

In order to determine how many of the cases which reacted negatively to the 1/50 minimum lethal dosage, and therefore had as much as 0.031 units of antitoxin per cubic centimeter of blood, would have as much as 0.06 units of antitoxin per cubic centimeter of blood, fifty-five cases were tested with 1/25 the minimum lethal dose, that is, with exactly twice the quantity of toxin. Table 3 shows the results in this series.

Eleven showed mildly positive reactions which, however, did not show typical healing. Forty-four,

or 80 per cent., gave negative reactions, which may be taken to indicate that, per cubic centimeter of blood, this percentage of cases has more than twice the amount of antitoxin that is necessary to protect from diphtheria.

There is no immunity conferred by this minute dose of toxin, as cases which react positively continue to show positive reactions to injections over a period of weeks, unless immunized by an active diphtheria or by the administration of antitoxin.

CONCLUSIONS

The test is of definite clinical value in differentiating between persons who are susceptible to diphtheria and those who are not susceptible, and is therefore useful in determining which cases, of those to be placed in an environment where the liability to exposure is great, should be immunized.

It is of value in differentiating between clinically doubtful cases of diphtheria, positive reactions being obtained in clinical cases, negative reactions in carriers.

It is useful in experimental work in determining the effects of various forms of immunization and the duration of immunity conferred by these methods.

It has a definite value in the handling of diphtheria epidemics in institutions.

I am indebted to Parke, Davis and Co. for diphtheria toxin to perform these tests.

THE SUPERSTITION OF FLAT FOOT

THE HIGH VERSUS THE LOW ARCH AS A CAUSE OF PAINFUL SYMPTOMS IN THE FOOT

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The subject of static disorders of the feet has been extensively discussed under the names of "flat foot," "the broken down arch," etc., and a fair statement of present medical opinion would be to this effect: that under unfavorable conditions of weight bearing, the structure of the foot is so changed that the arch of the foot is lowered by the relaxation of ligaments and muscles, and that pain results from this malposition. It is with this point of view as explaining most cases of static disability in the feet that I desire to take issue in the present paper.

The term "flat foot" was originally the only one in use to describe static disorders of the feet, and was almost universally applied to them twenty-five years ago. Then came the terms "pronated foot" and "weak foot," and among the laity of late years one hears much of "broken," "dropped" and "fallen" arches, and finally there is now beginning to be used what is apparently the most correct name of all, namely, "foot strain."

Real flat foot of course exists, but the use of the term should be restricted to feet which are really flat and which touch the ground where the arch should be, a matter which the most casual examination can detect. These flat feet may be rigid and resist correction, or in the non-weight bearing position the arch may return to a certain extent, the former being rigid flat foot and the latter flexible flat foot. Flat feet, however, are not necessarily painful feet, but often are very serviceable. In the observations on the nurses to be spoken of, there were discovered five or six nurses with perfectly flat feet who experienced no trouble whatever in their three years of training.

The views here expressed were originally formulated during a research covering several years on the nurses of a large general hospital, where I examined and recorded the condition of the feet of the nurses on entrance, and where I saw and again recorded the condition of every one of those nurses who developed any static disturbance of the feet during a three years' course in the training school. These nurses worked in a day and night shift in badly ventilated wards, and foot trouble among them was extremely frequent. Observations on about 800 nurses were made, and the results of the analysis of the first 500 were published,[1] and the records in the remaining 300 cases were confirmatory of the facts published. The views thus formulated have been verified in a series of a good many hundred cases in private practice.

The case that impressed me most was one of the first of the series, a vigorous young woman with a foot which was theoretically so good that at my first examination I noted it as a type of the "good" foot, and photographed it later. But this young woman developed so much pain and discomfort in three months under the strain of her work that she was incapacitated for two months, and finally was compelled to leave the school on account of her feet. During her trouble there was no change in the position of the foot or in its imprint, *nor in any one of the 800 nurses thus studied was there a single case in which there was found any change in the arch of the foot,* that is, there was no evidence that these troubles were caused by a lowering of the arch. In every instance the nurse stood for examination on a slab of plate glass with a mirror placed underneath at an angle to reflect the weight-bearing areas, which appeared as greenish-white patches. These areas were sketched in the record and the amount of pronation noted, so that the statement that no change in the arch relations occurred rests on fairly accurate evidence—certainly accurate enough to detect any appreciable "falling" of the arch. There was in some of the cases a shifting of the weight-bearing areas slightly inward at the second examination when painful symptoms arose, that is, the foot had rolled over a little on to its inner side without change in the arch, but in many painful cases there was not even this change.

The conclusion which was formulated was to the effect that the static troubles in the feet which developed among these 800 nurses of the type which would ordinarily be described as "flat foot," "pronated foot," "weak foot," etc., could not be traced to any particular type or structure of foot. I had naturally expected that the pronated foot and the foot with a low arch would prove less enduring under strain than the foot with a high arch, but the figures as to the durability of these feet showed that the foot with the high arch, which touched the glass only at the front and back and not on the outer border at all, was slightly less enduring than any other form of foot—in other words, that a high arch was more likely to give trouble than a low one. In short, a careful examination of the foot did not enable me, as I supposed it would, to predict at all which feet would be enduring under strain. This was shown by taking consecutively a certain number

1. Lovett, R. W.: Am. Med., July 4, 1903.

of nurses with painful symptoms and contrasting them with a similar number taken consecutively who had no symptoms.

The inevitable conclusion from this research, which has been wholly borne out by my experience in private practice, is that the pain and disability cannot be attributed to the lowering of the arch, but to muscular strain, not necessarily attended by any perceptible change in the structure of the feet, and that the foot with a high arch is notably subject to foot strain. That continued muscular effort is attended by pain may be demonstrated easily by the attempt to hold the arm out horizontally for five minutes. Chronic muscular strain in the same way is likely to be evidenced by continued pain and irritability. In foot strain it is probable that ligaments also become irritated by the failure of fatigued and overstrained muscles to reinforce them as they should normally do, and thus that ligaments also serve as a source of pain and tenderness. Moreover, some degree of synovitis may arise in the tarsal joints, as, for instance, in the astragaloscaphoid joint, the under surface of which is frequently thick and tender in cases of foot strain.

All this has an important bearing on diagnosis, for many a patient is left to suffer from foot strain because the doctor can detect no lowering of the arch, and on the prevalent theory is naturally unwilling to diagnosticate any static trouble with the foot.

But if the shape of the foot was not to be regarded as predisposing to trouble, and if no lowering of the arch could be found to account for the symptoms, one had to look further and investigate other factors, and the question of the general condition of the nurses was next taken up. An investigation of the influence of the environment and general condition showed that 64 per cent. of the troubles developed in February, March, April and May, when the general condition was probably the poorest, and 60 per cent. of all cases of trouble occurred in the first two or three months of the nurses' training. The onset of the trouble was frequent after grip, tonsillitis and acute illnesses of one sort or another, and began more frequently during the menstrual periods than between them.

From this side, then, one is to look for a disproportion between the weight to be borne and the muscular power to bear it. General muscular power is weakened by acute illnesses, depression of the general condition, old age, prolonged fatigue, overuse and trauma, and of course the muscles become relatively insufficient when the body weight is greatly increased. The muscular power is, moreover, to be considered as always unfavorably influenced by the boot, because the foot as a weight-bearing structure is an exceedingly complicated mechanism. The weight of the body in standing and walking comes down on an elastic arch composed of twelve bones of different shapes joined together by ligaments and connected with muscles. This complicated structure must bear at each step the entire body weight, and instead of being left free to perform its function, as is the case with the other joints, such as the knee or elbow, it is encased from early childhood in a restraining and distorting leather covering which compresses and deforms the forefoot, a process tending not only to produce distortion of the foot, which exists in all adult shoe-wearing persons, but also to weaken the muscles, as shown most clearly in the plantar muscles of the shoe wearer as contrasted with those of the savage. For this reason the boot must be regarded as the most important contributing factor to foot strain, for the shape of the boot is never the shape of the normal adult human foot. The back part is well enough, but the front practically always compresses the forefoot, and this does much harm in narrowing and weakening the base of support which the forefoot should afford; yet to my mind this is not the chief evil, which it is usually supposed to be. This chief evil I believe to lie in the curve of the sole of the boot, for the following reasons:

In the investigation of the weight-bearing area of the feet in nurses there were three types of foot seen in the pressure areas on the glass:

1. A flat foot in which the forefoot made a broad pressure area which tapered back gradually to the round of the heel, but little indentation showing under the arch.

2. A broad oval area in front connected by an isthmus along the outer border of the foot with the circular area of the heel. This is the so-called "normal" imprint of the foot figured in the text books.

3. A form to be described as "two islands," in which there appeared in standing two areas not connected, one an oval in front for the forefoot and a circular one behind for the heel. This form is clear when the imprint of the foot is observed through the glass plate, but is not so clear in smoked and wet tracings.

Now the shape and curve of the sole of the boot assume that all feet are alike and that all feet possess rather a low arch; consequently a fair proportion of the community are wearing shoes which impede the muscular action of the foot, but do not afford a prop in the arch to compensate for it. In other words, the arch of the sole of the boot is often not so high as the arch of the foot. In most cases this does no harm, because the individual is vigorous enough to overcome the handicap; but it is a bid for foot strain in those less well equipped, and in my opinion accounts for many if not most of the cases of so-called flat foot, when there is no perceptible flat foot.

The influence of the heel I have never felt so clear about as have many of my colleagues. It was originally devised to keep the back part of the foot out of the mud, but has forgotten this function, and has increased to a very considerable height. But in many instances this height is conservative, and many a woman is made exceedingly uncomfortable by her doctor's orders to put on low heels. The woman with a weak deformed foot, the result of years of bad shoeing, has naturally a weak arch, which may not be able to support her weight without pain. But if she puts on a pointed shoe and a high heel the toes are held by the front of the shoe and the foot slides up on itself, the strain thus being taken off of the muscles supporting the arch, and the arch staying in place without muscular support by having its ends crowded toward each other.

But there is another function to the heel in the case of persons with short calf muscles, a condition described by Shaffer[2] as non-deforming club foot, by Bradford and myself as contracted foot,[3] and by Hibbs[4] as the muscle-bound foot. In these cases the foot cannot be passively dorsally flexed beyond a right angle, perhaps not so far as that. There is no space here for a discussion of the condition except to note that it is exceedingly common in a slight degree, and

2. Shaffer: Med. Rec., New York, March 23, 1885.
3. Bradford, E. H., and Lovett, R. W.: Orthopedic Surgery, Ed. 2, N. Y., 1899, p. 600.
4. Hibbs: New York Med. Jour., Oct. 24, 1914

that such patients as a rule are uncomfortable in low heels, because at every step the calf muscle is pulled on, and when the calf muscle is short and reaches its limit of extensibility, the necessary strain in finishing the step must come on the sole of the foot. If a horse goes lame in his posterior leg tendons, we raise the calks of his shoes; but if a patient goes lame from a similar cause, it is too often the case that the heel of the boot is lowered instead of being raised as it should be. I find that in cases of painful feet it is much more often necessary to raise the heel than to lower it.

But whatever the defects of the modern boot may be, we may as well accept them as conditions under which we must treat patients. The public has been informed fully of the facts, but turns a deaf ear to our attempts to better conditions, and only in the case of children can we hope to accomplish much in improving footwear.

The condition having thus been formulated, the question of a treatment based on this hypothesis becomes of importance. Real flat foot, if painful, must be treated; if not painful, it should be let alone. If it is to be treated, rigid flat foot is to be reduced under ether, or in extreme cases a wedge of bone must be taken out of the inner side of the arch. Painful flexible flat foot may be treated by supports.

The question of interest, however, comes in the treatment of flat foot which is not flat foot, which should be spoken of as foot strain. What has been said here would show that in formulating such treatment I should attach little importance to whether or not the foot was pronated. But I should attempt most carefully to study the conditions which produced strain, with a view to relieving it, and I should be especially on the lookout for an unduly high arch. The shape of the sole of the boot should be compared with the curve of the sole of the foot, and it will often be found that the leather of the sole inside of the boot under the arch of the foot has never even been defaced by the pressure of the foot.

If one considers the problem from my point of view, we are dealing with tired and overstrained muscles, probably irritated ligaments and disturbed circulation in the foot, attended by no especial lowering of the arch, but perhaps with a little rolling of the foot on its inner side. From this point shall we follow the "back-to-nature" method by whipping the tired horse and insisting on a treatment by exercises and the use of a flexible soled shoe, said in the advertisements to "cure flat foot," or shall we attempt to remedy the defect in the shoe which caused the strain, and supply to the irritated foot the support to the sole, the lack of which caused the trouble in the first place? It would seem on this ground reasonable that rest should be furnished to the overstrained muscles by supporting the under side of the foot most at its inner side. This support would best be furnished by a boot the sole of which was of a proper curve to support the arch of the foot, but it is practically impossible to get such boots made, and one finds it far easier to modify a ready-made boot than to secure one made to order fulfilling the proper requirements.

It is possible in the slighter cases, when an obviously bad boot has been worn, to remedy the trouble by the use of one of the good ready-made boots with as high an arch as may be obtainable; but more often it is necessary to raise the arch higher than this, which is readily done by splitting the leather forming the shank, removing the small piece of iron or stiffening which is already there in most boots, and replacing it by a piece of steel with a higher and longer curve, which can be easily made. If the foot seems to be tipped too far in when the patient stands, that is, is too much pronated, especially if there are present symptoms of strain at the inner side of the foot and ankle, the inner side of the heel may be made a quarter of an inch thicker than the outer, thus changing the whole bearing of the foot more to its outer border. For temporary support, the well-known strapping by adhesive plaster is of use. In shoes with a stiff enough shank, pads of felt cut to fit the arch of the foot may be of use in some of the milder cases.

Of late years it has become the fashion to decry the use of plates as producing muscular atrophy of the foot and doing great harm of an obscure nature, instances of which are not quoted. But the moderate and severe cases will in most instances be more quickly relieved by a proper fitting metal support than by any other means. The object of this metal support is not to my mind, as conceived by Whitman and others, to force the arch of the foot back into place, but simply to do what the boot does not do in supporting the strained and irritated arch; consequently, heavy plates with flanges are not necessary; neither do I find plaster casts of the foot often required. Plates of soft steel of graded sizes can be made to a neutral shape over the cast of normal feet, and by means of a monkey wrench and a round-headed hammer can be easily shaped to any foot by the surgeon. They have no flanges, and extend from the back of the heel behind to a point just behind the heads of the metatarsals in front. In width they are slightly narrower than the foot. When laid on the foot they should lie as smoothly as a layer of wet cloth. When they are put in the boots they should be comfortable, and if not they should be lowered until they are. Such strained feet as a rule are at least slightly swelled and thick in the arch, and as such swelling subsides, as it usually begins to do in two or three days, the plates may have to be raised slightly, after which they are tempered and nickel plated or covered with leather. They are worn as long as may be necessary, and in my experience the great majority of patients sooner or later are able to do without them without a return of symptoms, especially if they wear a boot which supports them better in the arch. If they have to wear them permanently, it is because the foot has been so damaged or is intrinsically so weak that it must be supported, and in our inability to get properly constructed boots made we have to resort to the clumsy addition of a metal plate.

Ill-fitting plates do harm by contusing the soft parts of the foot, and sometimes by straining it by holding it in an improper position. The plates as sold in shoe stores have too short a curve, and as a rule are sold by persons wholly ignorant of the first principles of plate requirements. They are often so soft that they bend under use, and nothing is more irritating than a rigid support which does not support. With regard to detriment to the foot, I feel no more hesitation in putting a plate on a lame foot which requires rest than I do about putting a sling on a lame shoulder, and for the same purpose in both instances, to relieve muscular strain temporarily.

I have never been convinced of the benefit of exercises as a treatment for foot strain in the acute stages, and I have seen many cases made worse by them, as I have by the use of the flexible shoes so frequently

prescribed. Such shoes may have their use as a method of muscular exercise when the acute irritation is subsiding, but not I believe in the acute stage. Yet it is only fair to say that I have three or four times seen patients with seriously painful feet relieved by these shoes when the plate treatment had failed.

Massage, I believe, is of benefit in all cases, but not necessary in most. Attempts at the gradual discontinuance of the plate should be made after a few weeks or months, and if it fails, then a series of exercises should be prescribed, after which a further attempt should be made.

SUMMARY

Feet vary in shape as much as do our features; some are naturally flat, others have a moderate arch, and some a very high arch.

Any foot may become painful from foot strain without any change in the height of the arch under unfavorable general conditions, overuse, ill health, etc.

Boots are a predisposing factor to foot strain not only by cramping the foot, but especially by not supplying adequate support to the sole of the foot. For this reason persons with high arches are quite as liable to foot strain as persons with low arches, if not more so.

When foot strain occurs, it is desirable to rest the tired structures by support, most often a metal plate.

Exercises in acute cases and the use of a flexible shoe generally do harm rather than good.

My final heresy consists in the belief that painful feet are more often helped by raising the heels than by lowering them.

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THE PREVALENCE AND PREVENTION OF INSANITY*

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PHILADELPHIA

There has been a great deal of careless writing, and many wild statements have been made, concerning the increase in the number of insane. The intelligent citizen, who must have an opinion about everything, and whose encyclopedic misinformation is obtained by wasting time reading the newspapers, is not to be blamed if he fears that before long this will be a world of madmen, for almost all he reads, were it true, would prove such a result to be inevitable. Fortunately, most of the "science" that he learns is untrue, and of course the world is in no danger of going wholly mad; but it is possible that the number of the insane in our country is increasing more rapidly than the general population. Let us see, therefore, what facts we can discover concerning the matter, and then decide whether there are data enough on which to base an opinion.

The important question is whether there is a percentage increase: a mere gross increase is probably inevitable as the population thickens, unless and until better preventive measures than those now at our command are discovered. To determine the percentage rate accurately and correctly it would be necessary, first, to find out the number of insane year by year, and this is not known in any country. The United States census office tried once to enumerate the mental defectives at a given date, but the results were so confessedly faulty that a second attempt has never been made. It is impossible to make a correct census of the mentally diseased because so many of them are not in institutions or even under medical treatment, and replies given by laymen relatives are for many reasons usually incorrect. Our only trustworthy figures, therefore, and they are trustworthy only to a degree, concern the number of insane and feeble-minded in institutions. Now comparing the number to-day with ten, twenty and thirty years ago, the figures increase with great rapidity. Therefore, say the innocent dabblers in the profound science of statistics (and it is remarkable what a large number of people think statistics mean the mere getting together and comparing the lists of figures), insanity must be greatly increasing. They forget several things: namely, that the population of the country has increased so rapidly that even a large gross increase does not mean a percentage increase; that only in recent years have the state governments begun to take care of the mentally diseased (previously they received scant care from anyone) and that in consequence of the increase in the number of hospitals many patients are now counted as insane who were previously overlooked; that hospital care lengthens life so that there is an ever-increasing number of holdovers; that the conception of insanity has greatly widened, and many types of disease, doubtless some incorrectly, are to-day so diagnosed which formerly were neglected or classified differently. When all these facts are remembered, the outlook becomes less dark, and we are led to conclude that there probably is a small percentage increase; there certainly is a gross increase. The data obtainable do not permit a more positive statement.

Admitting a percentage increase, what are the facts that cause it? Only two things can increase the insanity rate in any country for any great length of time: either a change in the race occupying the country, a more normal race being replaced by one less normal, or some change in the people themselves rendering them more prone to degeneration. External influences play but little part. War, famine and plague may temporarily increase the number of the insane, but these ills are soon recovered from and their effects are not lasting. They do not permanently affect the character of a nation. The same is true of alcohol. The strongest modern races have been most given to drinking. This does not mean that alcohol increases either racial or individual power, except that in a few persons it increases the emotional brilliancy of intellectual work and in others temporarily enables them to do greater physical work, but that the strong withstand it and a large number of the weaklings are quickly killed by it and hence do not procreate as they do under other conditions of life in which an attempt is made to protect them against themselves. Alcohol helps the strongest in the battle of life by getting rid of the competition of the weaklings who become its victims. The good it does is paid for at a very high price, but it does help the race by destroying the unfit. Insanity and its increase depend on the inherent nature of a people. Has there, then, been a change of races in America, or has some subtle change occurred in the people? I am inclined to believe that both are factors.

* Read at the meeting of the Philadelphia County Medical Society, Jan. 13, 1915.

Surely a part of the increase is caused by the character of the people who have of late years been coming into the country. The immigrants of to-day do not in the lump compare favorably with those of the last century and earlier. I cannot prove this save on a small scale, because we have no figures covering the country. The case of Philadelphia, however, will serve as an illustration. In Philadelphia there is now and has been for at least ten years a foreign-born population of 24.7 per cent. It supplies 44 per cent. of the indigent insane in the city.[1] In New York State, 27 per cent. of the registered insane are not citizens. The other large cities and many parts of the country are no better off. There has been an increase in the foreign-born insane rate since the Civil War.

Several writers have minimized the evil effect of the open door in immigration. Great opposition has been met with in passing any laws restricting it, and every obstacle has been put in the way of administering such restrictive laws as we have. Many of the writers, not a few of whom are of foreign birth and hyphenated in their allegiance not only to government but also to race, in arguing against health restrictions in immigration laws pay no attention to the real point at issue, namely, whether or not it is justifiable to exclude the unfit, but indulge in mock heroics, tremulous oratory, and emotionalism about the great work immigrants have done and are doing in building up the country, all of which is true but has nothing to do with the matter. The insane, those who become insane, and the degenerates in general do not help build up the country, and their exclusion does not mean the exclusion of any healthy person. Let me say here parenthetically that literacy laws, such as the one now being discussed in Congress, will not benefit us in the least. Ability to read is not a test of either virility or of sanity. The healthy illiterate man with clean moral reflexes is worth more to the country than the imbecile or degenerate who may read well. We have quite enough people who can read and not think: we need more people who can work. We need all the immigrants we can get who have had good moral training: we need none whose education is in that stage when they pass their time discussing whether there is such a thing as morals, which they usually speak of as ethics. The high grade imbecile uses his education for evil purposes: the more his learning the greater menace he is. Physical and mental health, which is a very different thing than education, and, so far as it can practically be determined, moral integrity, not schooling, should be the test. Those who champion the cause of the foreigners always say that each layer of immigration has met the same criticism from the older layers, and yet the descendants of each, they say, have given their quota to the country's good. The reply is, it was not the descendants of the insane and degenerate in the older immigration who have built up the country. Further, it is an undoubted fact that the older streams of immigration were made up of men and women of a higher type, both physical and mental, than those who have been coming of recent years. They were the first squeezing from the press of Europe, and were as much better than the present comers as the first squeezing of the wine press is better than the last. They came for the most part from countries that had at least a measure of self government, and they themselves had had generations of training and thinking, even if not always in acting, politically. The men who came here in the early days had the spirit of adventure, were virile and strong: the weak could not stand the stress of getting here. The criminals sent here as a punishment by the English government in colonial times were too few to influence the development of the country, though one would conclude from some of the articles written on the subject that America was entirely settled by convicts; and, according to some authorities belonging to the newest and most advanced and therefore most correct school of sociology, it is rather a good thing to have a criminal ancestry, because a criminal is a strong good man trying to break the fetters of a wicked society. To-day travel is so easy that any one can come; no one is so weak that he cannot stand the stress, and if he breaks, a comfortable bed in a hospital awaits him. A large number of the immigrants of to-day belong to races that have never had the responsibility of self government thrown on them. They and their ancestors have been treated as children politically, and they interpret freedom to mean license. Many of them are semi-oriental in their moral sense. I do not wish what I say to be interpreted to mean that most or even a large number of our present-day immigrants are in any way unfit: they are not; but the small minority who are unfit will do untold damage if not excluded. The old story of the rotten apple in the barrel continues true: the new version continues untrue.

More important than the direct influence of immigration in increasing insanity is the change that has come over the country in the character of the people. In no other country and at no other period in the world's history has there been such a rapid change in a nation's outlook on life, its opinions about the most vital things in life, as has taken place in America in the last thirty years, and the change has been altogether and entirely for the worse. This accounts in large measure for the increase of insanity, because this disease differs from others in, sometimes at least, having moral causes and always leading to moral degeneration. Insanity is both a result and a cause of racial decay. All the developmental insanities are the result of some biologic sin, a very different thing from theologic sin, somewhere in the ancestry. Many cases of imbecility, on the other hand, are the result of purely accidental causes at or before birth or of febrile infection in infancy or childhood. The sin may have been committed in innocence and ignorance, but nevertheless it was sin. Wherever biologic immorality predominates, wherever the fundamental natural laws are continuously broken, no matter how pure and good the intention of the law breakers may be, degeneracy will prevail, if not in that generation then in the next and thereafter.

One unavoidable and seemingly irremediable cause of the increase is the large number of insane among negroes of this generation. There is an increasing number of degenerates of all kinds among them, the result of the increasing responsibilities thrown on them in consequence of freedom and the hardships to which they are subjected. The slave was protected from alcohol and syphilis. The free negro is succumbing more and more to degeneracy, the result of bad living. Also, in the North, he is in many places not allowed to learn skilled trades, carpentry, house-

1. Burr, Charles W.: The Foreign-Born Insane, The Journal A. M. A., Jan. 3, 1914, p. 25.

painting, smithing and the like, and hence is of necessity driven to habits of idleness and crime. He is, by no fault of his own, becoming more and more a casual worker. We and not he are to blame, and we as well as he will suffer. The thing most needed for the moral redemption of the negro, and the measure that will be most potent for his mental health, is freedom of labor, opportunity to work. We have given him the, to him, useless bauble of citizenship and in theory the right to vote: we have largely deprived him of a chance to earn a living.

What measures can be taken not only to prevent the percentage increase of insanity, assuming that there is an increase, but also to decrease its frequency? A great deal has been written which is absolutely untrue, and many statements have been made about the causation, the prevention and the cure of insanity which are false. It is a common statement among popular writers that 40 or 50 per cent. of all cases of insanity arise from causes which were, in the individual case, preventable. This statement is not true, is not based on any properly studied statistics, and comes from calling things insanity which are not, and from guessing at the number of cures.

Most of the popular writing about the therapy of insanity is erroneous. There is no need to tell physicians that moral insanity cannot be cured by trephining the skull and is not caused by a hypothetic increase of intracranial pressure resulting from a suppositious skull injury received years before. We know that serious concussion of the brain and sunstroke, not mere heat exhaustion, increase the liability to certain types of insanity (dementia) in those predisposed, but this is a very different thing from so-called moral insanity or moral imbecility. Yet the newspapers frequently report cases of criminal youths who are to have or have had their skulls trephined in order to be cured of criminal instincts. Very often a cure is reported immediately after the operation, but we are never informed by what miraculous means a surgeon, or even an alienist, can judge the moral state of a boy having a beautiful time in a comfortable hospital and not tested by conduct. Sometimes a very honest newspaper reports that Johnnie Doe, who was cured a few weeks before by a most remarkable operation, never done previously, has just been arrested for some new crime. The evil is that parents read the stuff about curative operations and have their hopes lighted up, only to have them dashed to the ground in a short time. Another popular fallacy is that defective vision, bad teeth and a hundred and one physical defects having nothing to do with the mind, and often in themselves trifling, are the cause of what is euphemistically called retarded development when imbecility is what is meant. It is conceivable that a boy's eyesight may be so bad as to make the study of books impossible; that such a boy may, by the hopelessness of being able to study, become lazy and idle, and hence drift into a criminal life and on account of his little schooling be very ignorant; but this is not imbecility, or backwardness, and the occurrence of such a series of events is extremely rare, though it is natural for any boy to blame his moral deficiencies on anything if it will relieve him from punishment. Yet we read all the time statements such as "Eighty per cent. of all schoolchildren have defective vision and many are mentally deficient in consequence." "Lateral curvature makes deep breathing impossible, and constant lack of air causes mental backwardness." It is no uncommon thing for a vicious boy to take advantage of some defect, the importance of which he has learned by talking to his comrades, as an excuse for bad conduct. There is a great amount of exaggeration in the writings of amateur pedagogs and unskilled, self-trained psychologists about this whole subject of the influence of peripheral disorders on mental growth. We may dismiss, then, as worthless all attempts to prevent or cure insanity or imbecility by mechanical operations on the skull, the eyes, ears, nose, tongue, etc.

The people who believe in remedying all evils by passing laws have proposed many things. Most talked about are laws regulating marriage. Since we have agreed to abolish the constitution, because being upward of a hundred years old it must be out of date, and have decided that we are to be governed by oratory, since talkers are to be more honored than doers, and the golden tongue is held more useful than wise actions; since we have discovered that in passing a law we must not stop to find out whether the evils brought about by its enforcement may not be worse than those sought to be abolished, since we are rapidly attaining the acme of democracy, which is, not that the individual is to be free, but that we are to be the slaves of each other and no one is to attend to his own business and care for himself, and all are to worship the idiot god Demos; since we have become a country without law but with many laws, it is useless to discuss how far the state has a right to regulate marriage. It might, however, be well for some of the innocent reformers of all things, whose leaders are not always as innocent as they would have us believe, but have learned how easy it is to earn a living by pretending to be good and writing about it, to learn that an increasing number of children are born outside wedlock and this not only in the terribly wicked large cities but, and some authorities believe more numerously, in the country districts. It is also well to remember that a very large number of persons who have children who become insane on account of heredity do not present symptoms which even the wildest eugenist (it is a great pity that this useful and harmless word has come to have such a bad odor on account of the use it has been put to) would regard as justifying prohibition of marriage. It is not only the insane who procreate children who will become insane; indeed, relatively small numbers of the technically insane bear children, but many people who to the common eye are normal, though to the skilled they often reveal many signs. The eccentrics, the genio-cranks, the people with a mission to earn an honest penny by preaching the doctrine of the "upset," those who are so affected by the woes of others as not to help, but to weep, those who love us so much that if we will not be their brothers they will kill us out of love, those who have their own idiosyncratic moral code, in short, all those who have "too much ego in their cosmos," add and add enormously, by procreation, to the army of the degenerate. But we cannot prevent the marriage of such people.

The laws passed in certain states authorizing and sometimes requiring an operation on men guilty of certain crimes, or imbeciles, which, while making conception impossible, yet leaves the man capable of having intercourse, will in a very slight degree decrease procreation but will in very large degree increase the

number of cases of sexual disease. To remove the ovaries of an imbecile girl and then let her go at large will have the same effect. She will be used by men for evil purposes and act as a carrier of gonorrhea and syphilis. Fortunately, operations of asexualization will be done so infrequently as to be practically negligible. The laws belong to the class that cannot be carried out, and become laws only by the constant effort of small groups of people who think they have discovered panaceas, while the great mass of citizens pay no attention to what the law makers are doing.

The laws in some states requiring before marriage a thorough medical examination and a clean bill of health in all respects are impossible of being enforced. No one physician has the skill and knowledge necessary to make such an examination as the law orders. Their main evil, and it is a very vital and fundamental one, is that they increase the already portentious American contempt for law. No one dreams that because a law is on the statute book it is going to be enforced. In one state at least the applicant becomes his own diagnostician and naturally always swears he is well and free from all disease. Of course all applicants, epileptics, consumptives, syphilitics, are well. In another state the clerk of the court is required to decide the mental state of applicants. He, after casually looking at the person (the examination must be casual, for the clerk has time for nothing more), must decide whether the person is competent to breed mentally healthy children. The clerk takes a more or less solemn oath to this effect. The task is a little difficult.

Certain things can be done by local, state and national governments to prevent insanity. The degenerate, imbecile, criminal and insane foreigners can be kept out of the country. The national government has already done a good work in this matter, but much remains to do. The number of examiners at ports of entry is too small. The government physicians doing the work are well trained, industrious and conscientious men, but the amount of work they are required to do is far beyond their power. There ought to be some way by which the medical corps could be increased and physicians could be on board the vessels bringing immigrants so that they could be thoroughly studied during the voyage. The laws should be rigidly enforced, and no soft-hearted political official at Washington should have the power to abrogate them because his feelings and sentiments have been worked on. Why, for example, as is alleged, on good authority, to have happened, should a high grade imbecile boy be permitted to enter this country because his father wants to get in and not be separated from him? The boy undoubtedly will be better, that is, more extravagantly, cared for here than in his home country, and it is an admirable quality for a father to want to have the company of his son; but the son will add a burden to the country which will not cease with his own death, and may increase indefinitely. From the point of view of the emotionalist he ought to be admitted because it is too sad to see a father weeping over his son. But if you want a strong, healthy and moral race you must not disregard laws because you weep with ease. It should be less difficult to deport aliens whose insanity appears after landing. Those who become insane should be returned whence they came, even though it is not possible to prove that the cause of their disease arose before coming here. Under certain conditions resident degenerate aliens can now, under the law, be deported; but there are too many restrictions.

Degeneracy in general would be diminished if the imbeciles were gathered up and put in state institutions for life. This would cost money, but in the long run would be less expensive than our present method of dealing with the problem. The institutions should be farms, not boarding schools, and the inmates should be taught according to their capacity and physical strength to do all kinds of farm work. They would be partly self supporting. To permit imbecile boys or girls to go out into the world is to give them an opportunity, which they will seize, to increase the degenerate population. The offspring of two imbeciles is always a degenerate; if only one parent is afflicted, the child may possibly escape. It surely is a function of state government to take care of the imbecile and idiotic. Not a single state does it properly. Many states do it after a fashion, but in every one there are hundreds and in the more densely settled states thousands of feeble-minded persons at large. Every one of them is a danger to the community. Of the relatively few who are sent to institutions as children, quite a large number are returned to their homes when they reach maturity. What often happens is this: the parents find that after the son or daughter has been in the institution several years, he or she has been trained to do a certain class of manual labor, steadily and fairly efficiently. They also find that he is quieter and better behaved than he was at home. They think he is cured; and being ignorant and usually not overbright themselves, they of course are saturated with the belief which the "uplift" papers have been spreading abroad for years, that all managers of all institutions and corporations, indeed, every successful person, is a grafter; and when told that the boy or girl should be kept in the institution, they believe that the managers want him there to get work out of him. They take him home, and very soon all the good effect of institutional discipline is lost and he becomes a menace to the neighborhood. He procreates with others of his kind and he commits many petty crimes before he comes into the grasp of the law and is sent to jail. The remainder of his life is spent in getting in and out of houses of correction, jails and almshouses. The hope cherished by the optimists fifty years ago that imbeciles could be taught morality has turned out false. The imbecile is amoral, not immoral. He is morally color blind. He can be taught to obey, and to be happy in doing so, while under the discipline of a well-regulated institution: he cannot be taught the real meaning of right and wrong. He can be trained as a dog is trained, but there cannot be implanted in him any realization of righteousness. He cannot be educated morally in the proper sense of the word, and any mental training he gets he will use for bad purposes. He should be given manual, not scholastic, training.

Proper treatment of the criminal class, the habitual criminal, the man who lives by crime, would do much to decrease the number of the insane and degenerate. Though crime is not a symptom or proof of insanity, and many sane men commit even horrible crimes, yet many of the habitual criminals are mentally abnormal, and this, coupled with the usually vicious habits of their lives, increases the danger of their offspring being degenerate. There is no doubt that the great

decrease in crimes against the person and property in England during the latter part of the nineteenth century, and the great respect for law still existing there in comparison with American contempt for all authority, was in part the result of the rigid enforcement of stern criminal laws for many years. A part of this result came from preventing procreation by hanging and by long jail sentences, which were carried out, pardons being rare. Our moral sense, on the contrary, has become so twisted and perverted that we, or rather the people who pretend to have the right to teach us a new morality, regard the criminal as a poor unfortunate, the victim of the sins of society, who should be treated with kindness and gentleness and regarded as an ill man, not as a vicious parasite. The older morality taught children to shun criminals as they would the plague. The rising generation is, in some quarters, being taught sympathy, and this not infrequently will lead to imitation. One of the evils of the parole system is that it gives the criminal greater opportunities for procreation. Our murder rate is appalling, and punishment decreases in severity as the crime increases. I speak of murder simply because it is the most striking crime; all others are increasing equally in frequency. Nothing will stop the increase except condign and certain punishment. The habitual criminal should be imprisoned, at labor, for life. When free, he adds to the degenerate population. It would cost the state much less to keep him at work in jail than to be repeatedly sending him there only to let him out again.

Most important of all is proper education and training of the young. Many dwellers in America are losing, indeed have lost, the old mental and moral attitude which held that man was put into the world to work, and have taken up the religion of play. This doctrine is being especially promulgated by the self-appointed leaders of the newest movement concerning education. Children must not be taught duty and self control, but must be spared from all responsibility and work. School must be made entertaining. Boys are being feminized. They are being taught that peace is the greatest good and war the greatest evil. Their healthy imaginations must not be fed on the wholesome fairy tales of former times because fairy tales are, say these modern moralists, lies; but they are taught the worst of all lies, that the greatest and most important thing in life is to live. They must not play soldier lest they become too virile. They must not have war-suggesting toys lest when they grow up they will not be pacifists. They must not work hard at school. They must not be whipped lest their dear little souls be hurt. They must not be taught obedience lest they lose their sense of freedom. Their teachers are women. All this leads to weakness and degeneracy. The greatest thing that needs to be done is to teach children self control, not as is now the fashion, to protect them from stress and strain, but to teach them how to withstand stress and strain.

Fortunately, the destiny of the universe does not depend on man. Evolution goes on careless and unconcerned at the trifling efforts of mankind to help or to hinder, so that we may have hope that the present wave of soft-heartedness and soft-headedness going over the country will be a mere wave, transient in its existence, transient in its effects, and that later there will be a reaction toward virility and a striving for and a worship of strength. To-day we are having preached at us the doctrine that the weak shall inherit the earth. It will not work. It is not true. Fortunately there is a large element of the community never heard from in public places and entirely uninfluenced and somewhat bored by the prevalent tendency to upset all things and start out anew. They will breed a strong race who will carry the burden of true civilization. They and not the weak will inherit the earth. They are not the offspring of weaklings and they will not breed weaklings.

PREVENTION OF BERIBERI AMONG PHILIPPINE SCOUTS BY MEANS OF MODIFICATIONS IN THE DIET

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Among investigators in the orient a large majority, I believe, now accept the tenet that beriberi is the result of subsisting on a diet deficient in certain substances, termed "vitamins," which are essential for the normal functioning of the nervous system. There are, however, some authorities who still question the deficiency theory, and who maintain that beriberi is probably of an infectious nature. In view of this skepticism it seems worth while that the experiences of the United States army with beriberi among its Filipino (native) troops should again be brought to notice at this time. I feel that I may do this, first, because I was in charge of the beriberi work in Manila from 1910 to 1912, when the disease was eradicated from the native troops, and am therefore familiar with the circumstances attending this change; secondly, it may be done now because at the present date (January, 1915) there has elapsed a period of time sufficient to render it extremely improbable that the abatement of beriberi in 1910 was a temporary remission merely coincident with, but not due to, a change in dietary.[1]

The War Department of the United States maintains in the Philippines a body of native troops officially designated as the "Philippine Scouts." The commissioned officers are white Americans. The enlisted men are Filipinos belonging to various tribes and gathered from all parts of the archipelago. There are about 5,200 men in the scouts, and the companies are located in numerous garrisons throughout nearly all portions of the Philippine Islands. Organizations are frequently changed from one section of the archipelago to another, and the contact between the scout soldier and the adjacent population is close and constant. Beriberi is at all times present among the civilian natives, and no effort is made to isolate the sick. Until the calendar year 1910, beriberi was a scourge to the Philippine Scouts. The total annual admissions from this cause ranged from a minimum of 115 to a maximum of 618, and there was a considerable death rate and many discharges from the service for permanent disability. In spite of six years of vigorous effort to suppress the disease, a climax was reached in 1908 and 1909, when the total admissions for beriberi reached 618 and 558, respectively. During 1910 certain changes in the dietary of the native soldiers were inaugurated, and in that year

1. Chamberlain, W. P.: Disappearance of Beriberi from Philippine (Native) Scouts, Mil. Surgeon, 1911, xxviii, 5, 509; Philippine Jour. Sc., Sec. B, 1911, vi, 133.

the beriberi admissions dropped to fifty. In 1911 there were three admissions, in 1912 two, in 1913 none and in 1914 only one up to June 30, when last reports were received.

The remarkable decrease in the incidence of the disease is most strikingly shown in Table 1 and the accompanying chart.

In 1908 and 1909, when beriberi was at its worst among the scouts, the ration supplied to these natives was that shown in Table 2.

The chief components were 12 ounces of fresh beef, 8 ounces of flour, 8 ounces of Irish potatoes and 20 ounces of rice. The rice furnished was a highly milled or polished[2] grain imported from Siam. When used as an exclusive article of diet for fowls this Siam rice was found to produce polyneuritis gallinarum in about twenty-five days.[3] The flour was a high grade wheat flour. It is now known, as a result of the work of Wellman and Bass,[4] Little,[5] and Ohler,[6] that wheat flour will induce polyneuritis when used as the only article of diet for chickens, and further, Little has shown that beriberi develops among white men in Labrador and Newfoundland when they subsist mainly on bread made from fine wheat flour.[7] Wellman and Bass also found that multiple neuritis developed when fowls were fed exclusively on Irish or sweet potatoes, but some other observers have reported contradictory results with Irish potatoes.[8] Vedder and Clark have shown that 10 gm. of meat, either cooked or uncooked, exercise some protective influence when fed to fowls subsisting on polished rice, as indicated by a prolongation of the incubation period beyond the average for polyneuritis gallinarum, but the influence of 10 gm. of meat was far less than that of 10 gm. of peas or peanuts, since that amount of the latter articles conferred complete protection against neuritis. It is impossible to determine how much meat the individual scout ate, but evidently the amount was in many instances insufficient to counterbalance the shortage of vitamins in the polished rice, wheat flour and Irish potatoes. Therefore beriberi developed.

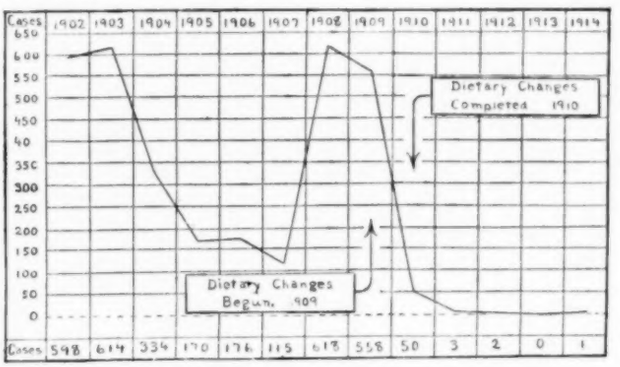

Chart of admissions of Philippine Scouts for beriberi during calendar years 1902-1914.

As a result of the work of Braddon, and Fraser and Stanton, the United States Army Board for the Study of Tropical Diseases became convinced in 1909 that oriental beriberi was due to a diet in which polished rice bulked largely. A propaganda of education regarding the prevention of beriberi was started among the scout officers, and on Nov. 3, 1909, orders were issued by the division commander that the rice component of the native ration should be reduced from 20 to 16 ounces, and that 1.6 ounces of beans should be added in place of the quantity of rice withdrawn. In March, 1910, the scout ration was radically altered to the form shown in Table 3. This change was adopted as a result of the efforts of persons who wished to put native products into use as far as possible.

The ration shown in Table 3 was satisfactory as regards its beriberi-preventing qualities, but gave rise to a number of practical difficulties. Mongos and camotes were hard to get in proper quantities, and the latter did not keep well. The Filipino No. 2 rice was unsightly, and consequently aroused opposition among the men. Ginger root could not be made popu-

TABLE 1.—BERIBERI STATISTICS FOR PHILIPPINE SCOUTS, CALENDAR YEARS 1902-1914

Calendar Year	Mean Strength	Admissions		Deaths		Discharges for Disability	
		Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
1902	4,826	598	121.42	29	6.01	2	0.41
1903	4,789	614	125.60	22	4.59	5	1.04
1904	4,610	334	74.62	7	1.52	6	1.30
1905	4,732	170	35.93	6	1.21	1	0.02
1906	4,759	176	36.98	9	1.79	6	1.19
1907	4,679	115	24.58	6	1.28	3	0.64
1908	5,085	618	121.54	7	1.35	13	2.50
1909	5,369	558	103.93	12	2.17	33	5.96
1910	5,422	50	9.22	2	0.36	3	0.55
1911	5,266	3	0.57	1	0.19	0	0.00
1912	5,407	2	0.37	0	0.00	0	0.00
1913	5,096	0	0.00	0	0.00	0	0.00
1914*	4,883	1	0.20	0	0.00	0	0.00

* To June 30 only.

2. "Polished rice," "highly milled rice," "scoured rice," and "white rice" have been used by various writers as synonyms. They are contrasted with "undermilled rice," "medium milled rice," "unpolished rice" and "red rice," all four terms indicating that more or less pericarp, or inner skin, has been left on the grain. Some rices have red pericarp and others have yellowish white. If the red pericarp is all milled off, the grain is then white. Therefore the use of the term "white rice" to indicate a highly milled article is objectionable because it leads to confusion between milling processes and color of pericarp. So far as the presence of adherent pericarp is concerned, undermilled rice corresponds with the "cured rice" of India (not used in the Philippines). Filipino No. 2 rice, referred to later, was an undermilled rice of rather low grade, containing many broken and unhusked grains and considerable dirt.

3. Chamberlain, W. P.; Bloombergh, H. D., and Kilbourne, E. D.: Influence of Rice Diet and of Inanition on Production of Multiple Neuritis in Fowls, Philippine Jour. Sc., Sec. B, 1911, vi, 3.

4. Wellman, C., and Bass, C. C.: Polyneuritis Gallinarum Caused by Different Food Stuffs, Am. Jour. Trop. Dis. and Prev. Med., 1913, 1, 2.

5. Little, J. M.: Beriberi, THE JOURNAL A. M. A., Oct. 10, 1914, p. 1287.

6. Ohler, W. R.: Experimental Polyneuritis, Jour. Med. Research, xxxi, 2, 238.

7. Little, J. M.: Beriberi Caused by Fine White Flour, THE JOURNAL A. M. A., June 29, 1912, p. 2029.

8. Eijkman and Vedder and Clark did not observe polyneuritis when fowls were fed exclusively on potatoes, but Vedder and Clark concluded that the neuritis-preventing vitamins were present in potatoes in relatively small amounts. Therefore, for a man subsisting largely on polished rice, the addition of a small quantity of potatoes would not supply sufficient vitamins to prevent the appearance of beriberi. See Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913, pp. 217, 259, 316, 402.

lar. Therefore the ration was changed on May 8, 1911, to the form shown in Table 4, which has continued in force to the present date. This ration obviates the practical disadvantages of the preceding one, yet embodies all the features important for beriberi prevention, namely: *use of unpolished rice in an amount not exceeding 16 ounces, and compulsory consumption of 1.6 ounces of beans.* The beans used are ordinary dried navy beans (for which mongos

TABLE 2.—FILIPINO RATION, ARMY REGULATIONS, 1908, PARAGRAPH 1220, IN FORCE UP TO THE LATTER PART OF 1909

Component Articles	Quantities, Ounces	Substitutive Articles	Quantities, Ounces
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
Flour	8	Hard bread	8
Baking powder, when in field and ovens are not available	0.32		
Rice	20		
Potatoes	8	Onions	8
Coffee, roasted and ground	1		
Sugar	2		
Vinegar*	0.08		
Salt	0.64		
Pepper, black	0.02		

* In this and the following ration tables the vinegar measurement is in fractions of a gill.

TABLE 3.—FILIPINO RATION, GENERAL ORDERS NO. 24, WAR DEPARTMENT, 1910, IN FORCE FROM MARCH, 1910, TILL NOVEMBER, 1910*

Component Articles	Quantities, Ounces	Substitutive Articles	Quantities, Ounces
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
Flour	8	Hard bread	8
Baking powder, when in field and ovens are not available	0.32		
Rice, Filipino No. 2†	16	Rice, Saigon (when Filipino No. 2 is unobtainable).	16
Camotes‡	8		
Mongos§	4		
Coffee, roasted and ground	0.5		
Ginger root	0.5		
Sugar	2		
Vinegar	0.8		
Salt	0.64		
Pepper, black	0.02		

* After the revocation of this ration, and prior to the establishment of the ration shown in Table 4, undermilled rice continued to be issued in most instances.

† "Filipino No. 2" rice, as the term is used in this ration, means an undermilled or unpolished rice. Although this ration began to go into effect in May, 1910, the issue of Filipino No. 2 rice was not accomplished till July and August, 1910.

‡ The camote is a vegetable allied to the sweet potato.

§ The mongo (Phaseolus radiatus, Linn), is allied to the bean or pea (Dutch, katjang idjo). Mongos had been used for several months before May, 1910, as a result of the order of the division commander previously referred to.

may be substituted). The undermilled rice is of the highest grade, has a white pericarp, is palatable and not unsightly in appearance, and contains over 0.4 per cent. of phosphorus pentoxid.[9] Numerous series of experiments have shown that fowls can subsist exclusively on this grain without developing neuritis.

9. Phosphorus pentoxid is not the substance which prevents beriberi, but since most of the phosphorus in rice is located in the pericarp and aleurone layers an estimation of the phosphorus pentoxid present provides a simple chemical method of determining the degree of milling of the grain.

The reduction in beriberi by months, as compared with the figures for 1908 and 1909, appears in Table 5. In an article published several years ago[1] I showed that a reduction in the amount of polished rice consumed by the scout soldier and the use of a certain quantity of beans or mongos was gradually put into practice, beginning in the latter part of 1909. *These two changes proved sufficient to eradicate beriberi, the disease disappearing before the substitution of unpolished for polished rice had been accomplished. I believe that the consumption of beans, to the daily amount of 1.6 ounces, would unaided have prevented a recurrence of beriberi, but it would obviously be difficult to make sure that all the men ate their share of this article over long periods, and it is, therefore, much safer that the largest component of the diet, rice, should be of the unpolished variety and by itself sufficient to prevent neuritis.*

The seven cases which have occurred since August, 1910, can readily be explained on the assumption that certain soldiers did not consume the average diet as furnished to the company, and made up the deficiency by eating largely of polished rice outside of the mili-

TABLE 4.—FILIPINO RATION, ARMY REGULATIONS 1913, PARAGRAPH 1205, IN FORCE FROM JUNE, 1911, TILL PRESENT DATE*

Component Articles	Quantities, Ounces	Substitutive Articles	Quantities, Ounces
Beef, fresh	12	Bacon	8
		Canned meat	8
		Fish, canned	12
		Fish, fresh	12
		Hard bread	8
Flour	8	Soft bread	8
Baking powder, when in field and ovens are not available	0.32		
Rice, unpolished	20		
Potatoes	8	Onions	8
Coffee, roasted and ground	1		
Sugar	2		
Vinegar	0.08		
Salt	0.64		
Pepper, black	0.02		

* "Scout organizations will be required to use the entire allowance of the meat component, and not more than 16 ounces of rice per day to be used for each ration. The purchase of 1.6 ounces of beans per ration in substitution of the portion of the rice ration not drawn will be made, and use of as large an extent as possible of native products, such as camotes, mongos and squash, will be required."

tary post, many of the scouts being married, with families living near the government reservation. Probably a number much larger than seven did this, but only the rare individual, who was especially susceptible to neuritis, so far reduced his supply of vitamins as to show symptoms.

During the year 1910 there were no improvements in the sanitary conditions among the scouts, except the dietetic changes, which could account for the lowered incidence of beriberi observed in that year and persisting ever since. It will be seen from Table 6 that from 1902 there has been a gradual, though not always progressive, reduction in the admission rates for diseases other than beriberi. This decrease, however, was no more marked, in fact was rather less marked, during the year when beriberi disappeared than at some other periods. The decrease in diseases other than beriberi is to be attributed to the steady improvement in the general sanitary situation among the scouts. This reduction was not at any time paralleled by a corresponding reduction in the beriberi rates, for in 1908 and 1909 the beriberi admis-

sions were greater than in any year except 1903. Since the year 1910, when beriberi disappeared coincidentally with the dietetic improvements, there has been a well-marked, steady, but not spectacular, reduction in the incidence of diseases other than beriberi. This gratifying decrease in morbidity should be attributed in part to the continued improvement in the general hygienic condition of the native army, and in part directly to the alleviation of vitamin famine by which the susceptibility to many other diseases is undoubtedly increased if the vitamin starvation is sufficiently marked to produce recognizable beriberi, and perhaps even when the deficiency is not present to such an extreme degree.[10]

During the years prior to 1910, beriberi among the scouts had been combated mainly on the assumption that the disease was infectious. The complete failure to prevent its occurrence by isolation and disinfection is clearly indicated by the figures in Tables 1 and 5. Beriberi has been greatly reduced, and in some instances eradicated, in the civil institutions in the Philippines by the application of the same dietary principles which have proved so successful among the scouts. The disappearance of beriberi in the scout organizations and in the civil institutions was not coincident with a decrease of the disease in the general population. On the contrary, at the date of its disappearance from the scout organization, and for two years subsequently, beriberi was on the increase in Manila and was not abating in the provinces. Although a campaign of education has apparently diminished the incidence of beriberi to a considerable degree in Manila in 1913, yet the disease still prevails extensively in that city, partly because of the unwillingness of the native to use undermilled rice, and partly because of difficulty in obtaining such grain in the general markets. With the disease everywhere prevalent about the scout garrisons, and with the native soldiers mingling with the diseased civilians in the most intimate manner, it seems inconceivable that the years 1911, 1912 and 1913 should have passed with only five cases among the scouts if the malady were caused by an infectious agent, unless indeed, the infection were dependent for its development on a specific dietary deficiency.

Brief mention should be made of the occurrence of so-called beriberi among American troops serving in the Philippines. The reports of the surgeon-general of the army show twelve admissions for this cause in the period from 1904 to 1913, and fifty in the years 1902 and 1903. Lapse of time and lack of records render it impossible to determine by case analysis the real significance of these figures. It is important to consider, first, that in the earlier years of the Philippine occupation many of the physicians serving with the army had but a limited experience with tropical diseases; and, secondly, that the differential diagnosis between the peripheral neuritis of beriberi and that due to alcoholic poisoning is not always easy. Furthermore, there have been many occasions, notably during the first few years covered by Table 7, when detachments or companies of white troops have made extremely arduous campaigns on short rations, often living largely off the country, mainly on rice and native potatoes (camotes). When any component of the authorized ration was available to supplement this diet, it was most likely to be "hard bread," which is made of fine wheat flour. That beriberi did not develop more frequently among whites in the early Philippine campaigns is due doubtless to the fact that the so-called "incubation period" of beriberi, even for natives subsisting mainly on polished rice, is a very long one, ranging from sixty to one hundred and sixty days, as shown by Fraser and Stanton,[11] and by Strong and Crowell.[12] That a diagnosis of beriberi among American troops has been made but twelve times for the period 1904 to 1913, inclusive, the mean annual strength of the command averaging about 12,000 men,

TABLE 5.—ADMISSIONS FOR BERIBERI BY MONTHS, CALENDAR YEARS 1908 TO 1914

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1908*	14	34	102	23	51	33	55	39	63	59	88	63	624
1909	138	89	96	88	38	24	28	36	7	27	22	11	604
1910	19	8	12	3	4	1	0	2	0	0	0	1	50
1911	1	0	0	0	0	0	0	1	0	0	0	0	2
1912	1	0	1	0	0	1	0	0	0	0	0	0	3
1913	0	0	0	0	0	0	0	0	0	0	0	0	0
1914	0	0	0	1	0	0	?	?	?	?	?	?	1

* The discrepancy between the totals for the years 1908 and 1909, as shown in this table and in Table 1, is due to the fact that the above was compiled from the records of the chief surgeon of the Philippines Division and Table 1 from the reports of the surgeon general of the army. In the surgeon general's reports one admission is recorded for each case, while in the chief surgeon's records a new admission appears when a patient is transferred from one hospital to another.

TABLE 6.—RATES PER THOUSAND OF ADMISSIONS FOR BERIBERI AND FOR ALL OTHER DISEASES AMONG PHILIPPINE SCOUTS

Calendar Year	Beriberi	Other Diseases
1902	121.42	1,489.14
1903	125.60	1,144.85
1904	74.62	948.59
1905	35.93	1,101.43
1906	36.98	1,138.27
1907	24.58	956.83
1908	121.53	786.24
1909	103.93	727.14
1910	9.22	738.67
1911	0.57	665.97
1912	0.37	616.79
1913	0.00	585.36

10. It has long been known that scurvy is due to the absence from the food of some substance necessary for proper nutrition, to which the name "vitamin" has been given by Funk. He suggests that the pellagra syndrome with stomatitis, gastro-intestinal lesions, erythema and nerve symptoms may also be due to vitamin starvation, and several other observers have expressed the opinion that pellagra might be a deficiency disease (Blue, Rupert: Problem of Pellagra in U. S., Tr. Nat. Assn. for Study of Pellagra, Second Meeting, 1914, p. 1; Sandwith, F. M.: Can Pellagra Be a Disease Due to Deficiency in Nutrition? Ibid., p. 27). Darling (Pathologic Affinities of Beriberi and Scurvy, The Journal A. M. A., Oct. 10, 1914, p. 1290) has recently discussed the affinities and overlapping symptomatology of rickets, infantile scorbutus, scurvy, experimental scurvy of guinea pigs, ship beriberi, beriberi, and polyneuritis gallinarum. Grieg (Epidemic Dropsy in Calcutta, Calcutta Gov't Reprint, 1911) is of the opinion that epidemic dropsy is due to defective nutrition. The subject of vitamin deficiency offers a wide and hopeful field for future investigation of obscure diseases.

11. Fraser, H., and Stanton, A. T.: Etiology of Beriberi, Studies from Inst. for Med. Research, Federated Malay States, 1909, No. 10.

12. Strong, R. P., and Crowell, B. C.: Etiology of Beriberi, Philippine Jour. Sc., Sec. B, 1912, vii, No. 4.

is extremely significant when it is remembered that those same American troops were mingling freely with natives, both civilian and military, among whom beriberi was always rife. If the determining factor in the incidence of beriberi was an infectious agent I believe there would have been a large admission rate for the disease among the white troops. As regards the possible confusion of beriberi and alcoholic neuritis, it should be mentioned that among the American troops the continuous excessive use of strong liquors

TABLE 7.—ADMISSIONS DIAGNOSED AS BERIBERI AMONG AMERICAN TROOPS IN THE PHILIPPINES

Year	Mean Strength		Number of Admissions
	White	Negro	
1900	64,353	2,529	1
1901	55,533	4,387	0
1902	30,300	2,642	28
1903	23,818	0	22
1904	11,996	0	1
1905	11,057	0	5
1906	11,885	737	2
1907	9,854	1,858	1
1908	9,840	2,296	1
1909	12,055	1,159	2
1910	12,333	0	0
1911	12,454	0	0
1912	11,006	1,351	0
1913	9,572	1,811	0

is only too frequent, while on the other hand the Filipino soldier is from racial habit very abstemious.

Only six diagnoses of beriberi have been reported among the negro troops serving in the Philippines, one in 1900, and five in 1902. These cases are included in the figures given in Table 7. As shown in the table the number of black troops serving in the archipelago has varied greatly from year to year, but for the entire period has averaged 1,400 men. The negro soldiers are furnished the same dietary, and live under the same hygienic conditions as do the white troops. The ration is a very liberal one, containing as chief components 20 ounces of beef, 18 ounces of flour, 2.4 ounces of beans and 20 ounces of potatoes. Rice is used only to a trifling extent. The methods of cooking are identical with those employed by whites in the United States.

The opponents of the deficiency theory of beriberi have perhaps had their case strengthened by the fact that the majority of the advocates of the theory have carried out their practical work for the most part in the orient, and have dwelt almost entirely on polished rice as a factor in the etiology of the disease. In the orient rice is, indeed, the factor of importance. In other lands, where rice is little used, the case is quite different. The two following points have received insufficient attention from certain writers:

1. *Many articles of diet, other than rice, are relatively deficient in neuritis-preventing vitamins.* Among these may be mentioned fine wheat flour, wheat bread,[13] macaroni, "ship biscuit," sago, hominy, cornstarch, various breakfast foods, and possibly potatoes. (Wellman and Bass,[4] Little,[8] Ohler,[6] Vedder[14]). The exclusive use of these substances leads to polyneuritis gallinarum.

2. *Exposing food to a temperature above a certain point decomposes the neuritis-preventing vitamins present.* It was first shown by Eijkman, and has been abundantly confirmed, that a temperature of 120 C. destroyed some substance in undermilled rice, barley and rye, with the result that multiple neuritis developed when these foodstuffs were used as exclusive articles of diet for fowls. In a neuritis-preventing extract of rice polishings it was found in Manila that boiling, when prolonged for many hours, destroyed some or all of the vitamins present. It is probable that the process of sterilizing necessary for the preservation of canned foods, such as meat, beans and peas, destroys the beriberi-preventing elements originally present. It is well known that the vitamin necessary to prevent infantile scorbutus is destroyed by a temperature at or even below the boiling point, but the substances which avert beriberi appear to be somewhat more resistant to heat.

Therefore when confronted by a syndrome suggesting beriberi it is unsafe to assume that the condition is not due to a vitamin starvation until the dietary has been studied most carefully, and from a point of view entirely different from that occupied a few years ago.[15] Mere dependence on proper amounts of fats, proteins, carbohydrates and salts is not sufficient. One must learn, by animal experiments if necessary, whether the essential components of the ration contain vitamins in quantities adequate to maintain nerve nutrition. It must further be determined whether or not vitamins, originally present in the various articles, are being in part or in whole decomposed by the culinary processes employed. Attention to these points will probably explain the occasional outbreaks of beriberi in lands where the disease is not endemic and where rice is not a food staple.[16]

Furthermore, it is important to remember that beef (and possibly many other articles not yet studied) contains enough vitamins to prevent the development of neuritis, when fed exclusively to fowls, yet the quantity present is relatively small when compared with the amount found in beans, peas, mongos, barley, peanuts, yeast, or the bran (polishings) of rice or wheat. Therefore if the chief components of the ration are greatly deficient in neuritis-preventing substances the addition to the dietary of a small amount of meat will not supply sufficient vitamin to prevent the onset of disease.

Whole wheat in the kernel, whole wheat bread made without yeast, whole corn, and undermilled rice can be fed indefinitely to fowls, as an exclusive diet, without inducing neuritis. Evidently in all these cereals the neuritis-preventing elements reside mainly in the outer coatings of the kernel (pericarp and aleurone layer). This has been abundantly proved in the case of the last named grain, since neuritis does not occur among fowls subsisting on highly milled rice provided

13. The result was the same whether the bread was made with or without yeast, though when yeast was used the incubation period was a little more prolonged. (Ohler, W. R.: Experimental Polyneuritis, Jour. Med. Research, xxxi, 2, 238). Yeast is known to contain a neuritis-preventing substance, but evidently the small amount required in making bread is not sufficient to overcome the shortage of vitamins in the highly milled wheat flour. Holst has shown that polyneuritis does not develop on an exclusive diet of rye bread, with or without yeast.

14. Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913, pp. 217, 259, 316, 402.

15. Vedder, E. B.: Further Remarks on Beriberi, Am. Jour. Trop. Dis. and Prev. Med., 1914, i, 12, 826.

16. In Brazil Lovelace attempted unsuccessfully to eliminate beriberi by abolishing the use of rice. In place of rice he substituted macaroni. The other staple foodstuffs were dry biscuit, meat (dried and tinned meat and codfish) and beans. We now recognize that a diet of macaroni or wheat flour (from which the biscuits were presumably made), leads to polyneuritis in fowls, and that the latter article (flour) can cause beriberi in man (See Notes 4, 6 and reference at end of Note 8). In the tinned meat the vitamins had probably been destroyed by heat. There is no information as to whether the beans were also tinned, or if not tinned, whether they were used in proper quantity. The experience of Lovelace, so far as it has been possible to investigate it, by no means throws doubt on the deficiency theory of beriberi.

they receive a daily dose of polishings (bran) or an alcoholic extract of polishings. The use of this same extract, or of substances isolated from it, will rapidly cure polyneuritis in fowls, and beriberi in adults and infants[17] (Vedder,[14] Chamberlain and Vedder,[18] Andrews,[19] Calderon[20]).

If beriberi is due to a specific deficiency in the food it may be asked why it is that only a relatively small proportion of the oriental natives develop the disease, though nearly all are subsisting largely on a rice diet. The answer will be that the appearance of recognizable beriberi depends on facility in obtaining food and also on personal idiosyncrasy. Undoubtedly the bulk of the laboring classes, as a result of poverty and racial custom, are much of the time on the verge of vitamin starvation. At some seasons of the year the harvest will supply cheaply and in relative profusion certain articles rich in vitamins, notably mongos. The ingestion of these beriberi-preventing foodstuffs will raise the nerve nutrition of the oriental temporarily above the danger point. Furthermore, when he cultivates his own rice, and prepares it himself by hand-pounding, the product will be relatively rich in pericarp, and so beriberi-preventing. If before the harvest season his home-raised supply runs out he must purchase rice, and will usually find for sale a grain highly polished and very low in vitamins. In some persons a larger amount of vitamin is necessary to maintain the proper metabolism of the nervous system than is the case in others. Thus we see patients with every grade of beriberi, ranging from the most trivial signs difficult to distinguish, down to absolute prostration quickly ending in death. Among chickens subsisting on polished rice alone the majority develop symptoms of polyneuritis within one month, occasionally as early as the eighteenth day. Some, however, will not become paralyzed before forty days, rarely one will still appear well at the end of two months, and in three instances I have seen fowls that were free from paralytic signs after eighty-one, eighty-nine, and one hundred and twenty-five days, respectively, at which times the observations were discontinued. Vedder and Clark[21] have shown that in many instances slight degenerative changes can be demonstrated in the nerves of fowls which have been killed before any signs of polyneuritis were manifested. The so-called "incubation period" of beriberi is much longer than that for polyneuritis in fowls. The experiments on human beings in the orient have shown that it may range from sixty to one hundred and sixty days. The quantity of food the individual consumes, as well as the quality of the ration, probably influences the result. This idiosyncrasy in incubation period, combined with the seasonal variations in food supply mentioned above, adequately explain why the bulk of the population are able to keep their vitamin demands supplied to an extent sufficient to prevent obvious or disabling signs or symptoms of beriberi.

The eradication of enteric fever from the United States army as a result of compulsory antityphoid vaccination; the suppression of yellow fever in Cuba and at Panama through the activities of Reed and Gorgas; the disappearance of beriberi from the Philippine scouts following intelligent dietary supervision; these notable events stand as three of the most complete, practical and spectacular triumphs in preventive medicine. All were accomplished through the efforts of medical officers of the United States army who were not hampered by the necessity of bending before the whims and prejudices of those they were about to benefit. These successes give bright promise of the advances which may be expected in civil life when the public is educated to accept, and the health authorities are given power to enforce, the rules necessary for the prevention of disease. Beriberi is a much more serious menace to the oriental races than is typhoid fever to the peoples of the occident. The danger from beriberi could be averted almost entirely by such legislation as would prevent in the orient the sale, manufacture and importation of rice which has been too highly milled. Yet in spite of agitation, extending over several years, the necessary laws have nowhere been enacted.

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17. In the disease known among the Filipinos as "taon," and which Manila observers believe to be infantile beriberi, Vedder and myself have reported remarkable cures immediately following the administration of extract of rice polishings to breast-fed infants. (Vedder, E. B.: Beriberi, New York, William Wood & Co., 1913, pp. 217, 259, 316, 402. Chamberlain, W. P., and Vedder, E. B.: Cure of Infantile Beriberi by Administration to Infant of Extract of Rice Polishings, Bull. Manila Med. Soc., 1912, iv, 26. Andrews, V. L.: Infantile Beriberi, Philippine Jour. Sc., Sec. B, 1912, vii, 67. Calderon, F.: The Taon Treated at La Gota de Leche, Bull. Manila Med. Soc., 1911, iii, 144. Gregg, D.: Infantile Beriberi in the Philippines, Boston Med. and Surg. Jour., 1913.) Symptoms, like aphonia, which are due to nerve degeneration of course improve only slowly, but the change in the general condition is as prompt and striking as that seen when fruit juice is used in the treatment of infantile scorbutus.

18. Chamberlain, W. P., and Vedder, E. B.: Cure of Infantile Beriberi by Administration to Infant of Extract of Rice Polishings, Bull. Manila Med. Soc., 1912, iv, 26.

19. Andrews, V. L.: Infantile Beriberi, Philippine Jour. Sc. Sec. B, 1912, vii, 67.

20. Calderon, F.: The Taon Treated at La Gota de Leche, Bull. Manila Med. Soc., 1911, iii, 144.

21. Vedder, E. B., and Clark, E.: Study of Polyneuritis Gallinarum, Philippine Jour. Sc., Sec. B, 1912, vii, 6.

COOPERATION IN PUBLIC HEALTH ADMINISTRATION *

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Cooperation in the field of education is no longer an experiment, but a thoroughly tried out reality. We are all familiar with the successful township high school or the consolidated rural schools, and we are convinced that these schools as a rule are better equipped and more efficient than could be maintained by each of the communities which have agreed to cooperate. It is obvious that two or three adjacent communities of from 1,000 to 5,000 inhabitants can unite and build and maintain a first-class high school with a corps of teachers who are specialists in their chosen fields. This, of course, would not be possible if each of these communities attempted to maintain a high school, because every subject taught would have to be offered in three different places, with a result that the scope and thoroughness of the school would be curtailed, there would be unnecessary duplication, and the burden of taxation would be too great; hence the impracticability of carrying out the scheme.

In the field of public health very little has been done in the direction of cooperation by adjacent cities and towns. It would seem, however, that fully as much could be gained by cooperation in this field as in the field of education. But in order to carry out the cooperative plan satisfactorily, it will in many instances be

* Read before the Illinois Conference of Charities and Corrections, La Salle, Oct. 28, 1914.

necessary to have state legislation, legalizing it, as has been done in Massachusetts and in New Jersey. With the advent of the sciences of bacteriology, epidemiology and sanitary engineering, our public health work has become so highly specialized that it is impossible to have even a pretense of a health department with only one man giving about a quarter or less of his time to the work and this a man who cares a great deal more for his private practice than for sanitation, and who has, moreover, only a meager knowledge of the rudiments of bacteriology and no knowledge at all of the principles of epidemiology and sanitary engineering. Such a man, besides being poorly equipped, is often unsuited for the position because he is more interested in his private practice than in sanitation and prevention of disease, and his actions are likely to be biased somewhat by his personal interests.

Another serious handicap of such a health department is brought about by entire inadequacy of financial support. The health department in a city of 5,000 inhabitants rarely has an allowance greater than $1,000 a year, and sometimes the greater part of that is spent on collection of garbage and refuse. The health officer in such a health department does not have the time, the money or the technical training to undertake the most important functions of the modern health department, such as milk and dairy inspection, supervision of water supplies, eradication of flies and mosquitoes, sanitary inspection of grocery stores, meat markets and slaughter houses and medical inspection of schoolchildren.

If, on the other hand, three or four such communities agreed to put their public health appropriations into a central treasury and organized one good health department, most of these important functions could be fulfilled. The minimum requirement for such a modern health department would consist of the following staff: a chief health officer with special training in public health work and medical inspection of schoolchildren; an expert bacteriologist and chemist with a properly equipped laboratory; a food and dairy inspector; one or two school nurses, and an office girl and stenographer. I am strongly of the opinion that the chief health officer should be a graduate in medicine, but he should not be permitted to engage in its practice.

To my knowledge only two experiments have been undertaken in the field of cooperation in public health work. The first of these was carried out in Massachusetts nearly two years ago, under the leadership of Prof. Earl B. Phelps,[1] and the second is the one about to be described from Illinois.

In the Massachusetts experiment eight committees agreed to cooperate, but four of them came in for milk and dairy inspection only. In our experiment we are serving only three municipalities, La Salle, Peru and Oglesby, Ill., but our central health department has entirely replaced the old boards of health in these cities.

Another vital difference between our experiment and the one in Massachusetts arises out of the fact that ours is supported entirely by a private donation. The scope of the work also is somewhat different in that we aim to make ample allowance for original research on the part of the chief health officer and bacteriologist.

1. Phelps, Earl B.: Cooperative Public Health Administration, an Experiment in Small Communities, Pub. Health Rep., Sept. 25, 1914, p. 2477. Cooperation in Public Health Administration in the Small Community, editorial, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1207.

La Salle, Peru and Oglesby are three small industrial communities in north central Illinois. They have a joint population of approximately 28,000 people, most of whom are supported by common labor in three cement works, two zinc works, a clock factory, a plow factory and a number of coal mines. La Salle and Peru are situated closely together and are separated only by a political line, whereas Oglesby is nearly 5 miles south of La Salle. Transportation between La Salle and Peru is greatly facilitated by a street car line giving a fifteen-minute service, but Oglesby must be reached by automobile, and a small runabout is part of the equipment of the health department.

Sanitation had long been at a low ebb in these communities, chiefly on account of the large percentage of foreign population, but in part also on account of inadequacy of provision for public health work. Nothing had been done on food and dairy inspection or medical inspection of schools, and the collection and disposal of garbage were rather unsatisfactory. Quarantine regulations were lax and difficult to enforce, and in consequence smallpox, diphtheria and scarlet fever were very prevalent for several years, and often were epidemic.

These conditions were clearly seen and understood by some of the residents, and especially by Hon. F. W. Matthiessen, who had previously done much for this community. It was clear to them that a more modern and more efficient health department was needed to cope successfully with these problems, but it was equally clear that these three municipalities, which are made up largely of laboring people, could not each support such a department with its various specialists. The old health boards could make no important improvements because they had no financial support and no men on their staffs with special training in public health work.

Early in 1913 Mr. Matthiessen, with the advice of his son-in-law, Dr. Phillip S. Chancellor, made a proposition to establish a modern health department for La Salle, Peru and Oglesby, with headquarters in La Salle, and supported by a private donation from Mr. Matthiessen. After a conference with the present director, the following plan of organization and operation was drawn up and submitted to each of the three city councils in October, 1913, for acceptance: The plan provided for the establishment of a hygienic institute in La Salle, under the general guidance of a director who was to be selected by Mr. Matthiessen and Dr. Chancellor. The director of the hygienic institute was to be accepted by each of the three cities as their chief health officer or health commissioner; but in order to give this organization a legal standing it was necessary that the mayor and city council in each of the three cities should appoint an assistant health officer who is a resident of the city in which he serves.

In order to keep these appointments out of politics as much as possible, the director of the institute is given the right of nomination of these appointees. It is understood that these assistant health officers shall work under the direction of the director of the institute, but we have no written agreement to that effect. This cooperation is secured, however, by virtue of the fact that they draw their salaries from the hygienic institute, the funds of which are controlled by its director. The director has a three years' contract with Mr. Matthiessen, which gives him rather full control of the institute, and the city ordinances give him full

charge of the health department. He is empowered to select his staff of assistants, which at present consists of a bacteriologist, a school nurse, an infant welfare nurse, a dairy inspector, a stenographer and bookkeeper, a laboratory helper and the three assistant health officers just referred to. Everybody on this staff draws his salary from the fund given by Mr. Matthiessen.

Our plan provided further that each of the three municipalities shall engage a sanitary policeman, who is to work under the direction of the health commissioner, but shall be paid by the city. The cities were also to provide for the collection and disposal of garbage, and to adopt a more up-to-date sanitary code which would embody recommendations made by the director of the hygienic institute.

The three assistant health officers are medical practitioners and give only a part of their time to this work. They act in the capacity of medical inspectors and are virtually in charge of the contagious diseases in their respective districts. All contagious diseases are, however, reported to the central office, and epidemiologic investigations are conducted from that office.

The general plan outlined was accepted in October, 1913; the new ordinances were passed in April, 1914, and the new health department took charge, May 15, 1914.

In formulating our plan of organization of the hygienic institute and the cooperative health department, economy of operation was not the paramount consideration. The first thing sought after was efficiency in public health administration; but those who advanced the projection were desirous that original research should also be provided for. We therefore aimed to have assistants enough to allow the director and the bacteriologist to devote considerable time to this important side of the work. Mr. Matthiessen's donation in support of this work was as follows: $12,000 for a suitable building for offices and laboratory; $5,000 for laboratory equipment and office fixtures, and $16,350 annually for salaries and maintenance.

When we started the work last spring, we centered our efforts on the insanitary condition of the alleys and on the milk supply. We found that most people threw all kitchen refuse and other waste into the alleys. Some used old wooden boxes or barrels, and a few (not over twenty-five families) had covered, watertight garbage cans. Stable manure was thrown anywhere in the alleys or on vacant corners of lots. These conditions were considerably improved, but not without a number of legal battles. There still are a great many uncovered garbage cans in the city, and many owners of horses have not yet provided a covered box for holding the manure.

All grocery stores, meat markets and restaurants are being systematically inspected and scored, and the schoolhouses are visited daily by either a school nurse or one of the assistant health commissioners.

All dairies have been inspected and scored, and the dairy cows will soon be tested for tuberculosis. The milk delivered in the cities is subjected to bacteriologic and chemical analysis several times a month. In La Salle all milk is now delivered in sterilized bottles, but in Peru the greater part of it is still dipped from cans in open wagons in the streets.

In order to bring about this improvement without greatly affecting the price of milk, we took part of our appropriation for equipment and installed a bottle washer and sterilizer, bottle filler and steam boiler in several of the dairies, free of cost to the dairymen. In spite of this assistance, however, the price of milk was advanced from 7½ to 8⅓ cents a quart, nearly 1 cent a quart.

Permanent records are being kept of all contagious diseases, births and deaths for the first time in the history of these municipalities. The open privies are slowly being eradicated, but most of these improvements are meeting intense opposition. We hope, however, that the greater part of this opposition will soon cease, as it will become apparent that these improvements are for the good of everybody. Industrial hygiene is part of our program, but thus far it has been impossible to give any time to this part of the work.

PITUITARY EXTRACT IN OBSTETRICS*

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"Throw away your forceps and use pituitrin," is the glowing headline of a recent advertisement of a large pharmaceutic concern. An enthusiastic obstetrician, in prefacing a report on its use, says: "Since the introduction of the antiseptic method in obstetrics by Semmelweis and Oliver Wendell Holmes in the early forties, nothing has had such a far-reaching effect on the practice of midwifery as the use of pituitary extract."

While both these laudatory expressions are, to say the least, slightly extravagant, nevertheless pituitary extract is here to stay in the armamentarium of the obstetrician.

The literature on the use of extract of the hypophysis as an oxytocic dates from Blair Bell's paper, read before the Liverpool Medical Institute, Nov. 4, 1909 (just five years ago). For the next three years its practical application was worked out largely by German and Austrian observers, and the German literature was voluminous. During the past two years many Americans have written on its use. The striking feature of all these reports is the unanimity of opinion as to its value and the almost total lack of untoward results, when used within its limitations.

In this brief paper I wish to supplement a more detailed review of the literature and report of twenty-six cases,[1] read before the State Medical Society in April, 1913, so I shall omit any extensive quotations. Since then I have used pituitary extract in twenty-four additional cases.

The physiologic action of extract of the hypophysis as an oxytocic is limited to the extract of the posterior lobe of the gland. From this, quite recently, have been isolated eight constituents, four of which, precipitated by phosphotungstic acid, can be separated from one another by fractional precipitation. These four principles differ in their action on the uterus, blood pressure and respiration. Number 4, for instance, has marked oxytocic properties, but no action on the blood pressure or respiration.

The pituitary hypertrophies during pregnancy to a marked degree—often to twice its normal size. In view of the marked effect of extracts of this gland on the pregnant uterus, what effect, if any, does the secre-

* Read before the Rochester Academy of Medicine, Nov. 9, 1914.
1. Quigley, J. K.: New York State Jour. of Med., June, 1913.

tion of the hypophysis have on the inception or origin of labor pains and on their continuance?

What effect would extirpation of the posterior lobe have on labor in a pregnant animal?

Pituitary extract given per os is practically inert, but given subcutaneously or intramuscularly its effects are noted in from three to ten minutes in a marked increase in the intensity and duration of the pains. This action continues for from sixty to ninety minutes. It shortens the third stage considerably, in my series by one-half. It is a prophylactic against vesical atony, so catheterization is rarely necessary post partum. It is a temporary galactagogue. It is non-toxic and non-cumulative. There are eight preparations on the market: two American, one English and five German. I have used one of these, namely, that of Parke, Davis & Co., in the most of my work, and the pituitary extract made by Burroughs Wellcome Co. and by Farbwerke Hoechst, to a lesser extent.

The original preparation was marketed in ounce bottles and was unstable from deterioration, so that now it is put up in ampules exclusively for hypodermic medication. One c.c. equals 0.2 gm. of dried substance. The earlier doses were unnecessarily large, some using as high as 4 c.c. as an initial dose. I have never used more than 1 c.c., and during the past year have found that ½ c.c. seemed quite as efficient.

If no result is seen in one-half hour, repeat the dose, using 1 c.c. at the second injection. If no response follows this second dose, one may conclude that the use of the agent in that particular case is a failure.

I wish to take exception here to the statement of Druskin[2] in his paper: "The use of the drug is remarkably free from danger even when given in enormous doses."

INDICATIONS

Uterine Inertia.—This in the second stage of labor is the ideal condition for the exhibition of pituitary extract, meaning a fully dilated or dilatable os, a presenting part that is engaged or can be made to engage, and absence of obstruction either on the part of the passage or passenger. Often, to be sure, in multiparae we find the head unengaged with unruptured membranes and a big pelvis. Here its use is admissible, *but an engaged presenting part with full dilatation is the safest working rule.*

Placenta Praevia Lateralis. — Pituitary extract should be used either after rupture of membranes and intraovular use of a Voorhees bag or without the bag.

Post-Partum Hemorrhage. — In this condition its action is more prompt and energetic, but not so prolonged as ergot. Hence it is well to supplement it with the use of the latter drug.

Cesarean Section.—Here it should be given at the time of the uterine incision. It is more prompt and certain than ergot.

As a Galactagogue.—Hill and Simpson[3] of Ithaca, writing in the *American Journal of Physiology,* claim an increase in the mammary secretion in a case in the fifth month of lactation with higher percentage of fat. The amount obtainable on the next morning was diminished, however. I have used it twice during the first three weeks of lactation, with a temporary improvement only.

Induction of Labor. — Pituitary extract will not induce abortion or premature labor (fortunately). Used in conjunction with dilating bags or the cervical pack, however, or in a case of inevitable or incomplete abortion, it is a valuable aid.

Late Puerperal Metrorrhagia.—One instructive case was that of a woman in her fourth puerperium with a history of severe bleeding at the sixth week post partum in two previous instances, which demanded rest in bed and, in one case, curettement. In this instance she was given 1 c.c of pituitary extract on the eleventh, twelfth, thirteenth, fifteenth and eighteenth with marked improvement after the first dose, and a cessation of bleeding after the fourth dose on the fifteenth. It was not necessary to put her to bed at any time.

CONTRA-INDICATIONS

First, last and all the time, *obstruction,* as, contracted pelvis, an occiput posterior stationary at the brim, etc. It is not to be used to hurry a case making normal progress, or when the cervix is not taken up; in the presence of marked high blood pressure, or if the fetal heart is unusually slow.

Now as to the objections to its use mentioned by a few observers:

1. Asphyxia Neonatorum. The children delivered after the use of pituitary extract commenced breathing as quickly as the average, and no true asphyxia was noted in the cases I have seen.

2. Tetanic Contractions. Pituitary extract is undoubtedly the most active oxytocic agent known. It does increase the intensity and length of the pains and shortens the intervals, but I have never seen a true tetany develop.

3. Post-Partum Relaxation. Three of my patients had quite a bit more of bleeding after the third stage than is usually seen, but nothing approaching a flooding or that did not respond to simple measures for its relief. If pituitary extract is administered over an hour before expulsion, the administration of the usual dram of ergot will obviate this danger, I think. It should not be used unless the patient can be under supervision for from one and one-half to two hours post partum.

4. Uterine Rupture. This, to my mind, is the greatest danger confronting us in the use of pituitary extract, and, at the same time, the easiest of prevention. Some four or five cases have been reported to date. The patient sent to Polak's clinic, Brooklyn, had had 4 c.c. as an initial dose. In a case reported by Druskin of New York, the patient, who had an acute nephritis, had been in labor only three and one-half hours and was making good progress, with strong regular pains, when 1 c.c. pituitary extract was given with the head at the inlet. Symptoms of rupture supervened in about an hour and a half. Herz of Leipzig, in 1913, reported a case of uterine rupture following administration of 1 c.c. to a delicate anemic primipara two days in labor with cervix dilated only two fingers' breadth, with a flat rachitic pelvis and outward bulging of lower uterine segment. It would seem that no comments on this case were necessary.

I cite these three cases first, to show that pituitary extract is a violent stimulant to uterine contractions, that it must not be used except when indicated, and that it must be used with discretion; secondly, to show that in the three cases the details of which are available, it was not used with judgment but, on the contrary, quite recklessly.

A brief statistical study might be of interest, first, as to the percentage of successes.

2. Druskin: Am. Jour. Obst., October, 1914.
3. Hill and Simpson: Am. Jour. Physiol., October, 1914.

In the two series, there were fifty cases with seven failures and three partial successes, or 86 per cent. of successes. Among the cases were 2 of incomplete abortion; 2 of induction in conjunction with hydrostatic bags; 2 of placenta praevia; 2 of cesarean section; 2 of puerperal metrorrhagia, and 1 in which the extract was used as a galactagogue. The balance, cases of inertia, chiefly secondary, included one breech and several occiput posterior cases. In the seven classed as failures it was necessary to resort to forceps delivery.

Secondly, as pituitary extract undoubtedly does supplant the forceps in many cases, it might be well to compare the fetal mortality.

In 147 cases collected by Madill and Allan,[4] in which pituitary extract was used, there were four deaths, or 2.7 per cent. In 106 forceps deliveries, fifteen deaths, or 14 per cent.; at the Basle clinic, 10.5 per cent.; Edgar (208 cases), 5.7 per cent.; at Dresden, 15.63 per cent.

The maternal prognosis is undoubtedly much better than with forceps, as the chances for infection are minimized.

Thirdly, as to the average time elapsing between the injection of the extract and the birth of the child.

In a series of cases noted by Madill and Allan at the Rotunda Hospital, this was in primiparae, 22 minutes, in multiparae, 11 minutes. Anderson[5] (Buffalo) gives in 10 cases, which he admits were selected from a large series, an average of 27 minutes. Druskin of New York, 50 minutes. My first series, 18 cases, 55 minutes.

Dividing these, the time in first stage injection cases was 100 minutes; in second stage injection cases, 38 minutes.

In my second series the time was 26 minutes; the minimum in the second series being five minutes. My explanation of this is that since writing my first paper I have narrowed my indications more and used pituitary extract later in labor.

In summarizing I will repeat the conclusions of my original paper.

SUMMARY

1. In pituitary extract we have the most powerful stimulant to uterine contraction yet discovered.
2. Its greatest value is its use in uterine inertia.
3. The ideal time for its exhibition is in the second stage, although good results follow its employment earlier; in these cases it is usually necessary to repeat.
4. No untoward results, such as post-partum hemorrhage or asphyxia, were noted for mother or child in the fifty cases.
5. It shortens the third stage.
6. It renders catheterization post partum almost never necessary.
7. It has no place in the normal case.
8. Preparations for delivery should be made at time of injection, such as sterilizing hands and gloves.
9. The facilities for giving an anesthetic at a moment's notice are prerequisite, for we do not know the susceptibility of the uterine muscle in any particular case.
10. Pituitary extract may advantageously be supplemented by seminarcosis when the presenting part is on the perineum. (This would naturally mean chloroform, ether, or pituitary extract. Nitrous oxid is contra-indicated in scopolamin narcosis.)
11. Pituitary extract *must* be used judiciously and with a due appreciation of the possible dangers of so powerful a uterine stimulant. This is the most important point.

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4. Madill, D. G., and Allan, R. M.: Use of Pituitary Extract in Labor, Surg., Gynec. and Obst., August, 1914, p. 241.
5. Anderson: Buffalo Med. Jour., May, 1914.

WOUNDS RECEIVED IN BATTLE

SURGICAL AND GENERAL OBSERVATIONS MADE DURING RECENT SERVICE IN AUSTRIA

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LOS ANGELES

In June, 1914, I was privileged to become a voluntary assistant in the second eye clinic of the Vienna General Hospital, the service of Hofrat Fuchs. At the outbreak of the war two wards of this service were placed under Professor Budinger, and on volunteering to serve without pay, I was given charge, with the understanding that all the eye cases of this division were to be referred to these wards so far as possible. I was active here for over three months, doing practically all the eye and brain surgery as well as all of the general major surgery of these wards, and assisting in the surgery of the five other wards of Professor Budinger's service.

Including 322 cases of my own, I had the privilege of observing about 1,100 cases of projectile wounds and war injuries of various kinds during this period, and my generalizations are drawn from this mass of material.

Of my own cases, 177 were bullet wounds, 95 were shrapnel, 4 were shell wounds, 7 carried bayonet wounds, 17 were cases of accidental injuries such as crushes of the extremities from the wheels of gun carriages, or fractured ribs from falls into trenches, and 22 were purely medical cases, mistakenly referred to us in the confusion which always accompanied the arrival of a great transport of wounded. The large excess of bullet and shrapnel wounds over wounds produced by shells, the reverse being the case on the French front, was the direct result of the more mobile type of operations on the Russian border, shrapnel being generally employed against masses of troops moving in the open, while shells of various types find their chief use in searching out the depths of trenches and in demolishing cover.

Nearly 63 per cent. of our bullet wound cases were infected, and over 85 per cent. of the shrapnel cases, while of the 188 infected wounds embracing all degrees of sepsis, fifty-eight, or approximately one in every three, came to operation. This high percentage of infection of shrapnel wounds accords with the English observations that practically all shrapnel and shell wounds became infected.

Six septic cases were lost, three being perforating bullet wounds of the knee, in which radical measures were deferred until too late, or not undertaken at all; one was a comminuted open fracture of the left forearm with tetanus, early amputation having been refused; one patient died from peritonitis and pyopneumothorax, and one from meningitis, secondary to a shrapnel perforation of the lumbar spine. The two other deaths were from spinal cord perforation and from spinal cord pulpification.

Three out of four of my patients with tetanus recovered under antitoxin and chloral. In one of these, a compound fracture of the left hand, amputation in the middle of the forearm immediately turned the scale in the patient's favor. All of these cases were noticeable, on entrance, for their very foul, black-gangrenous wounds and free suppuration.

Three patients with erysipelas and two with gas bacillus infection recovered, amputation of a leg being necessary in one of the latter cases.

Although many of the men were nervously upset in connection with their wounds and the trials of transport, the diagnosis of war psychosis (traumatic neurosis) was made in but six cases. The story usually told by these patients was that the violence of a shrapnel explosion had hurled them several meters into the air, and when consciousness returned, they found themselves partly paralyzed for motion, speech, hearing or vision as the case might be, and yet unwounded. These men regained their control very slowly, especially the hysteric amauroses, and were subject to excited dreams, melancholy and fits of weeping.

Amputations were done for tetanus, gas bacillus infection, torsion necrosis of a fractured leg and for septic knee joints.

At first small multiple incisions were the rule in phlegmons, but they quickly gave way to long, sweeping incisions, which alone gave the needed wide-open drainage.

I noticed, as all other observers have done, that wounds of the left hand and forearm were very common. In the shrapnel wounds of the hands, the terminal phalanges were nearly always torn off. Although literally hundreds of lacerated and infected fingers were seen and treated, in only one case was an amputation done.

Wounds of the bones were remarkable for the almost complete absence of the classical round perforations. Out of 101 such wounds, only two were simple perforations without fracture, while in most cases the comminution was very extensive.

Only one direct abdominal perforation reached us, and it had healed without operation, before the arrival of the patient. The entrance wound lay 2 cm. to the left and above the umbilicus and led slightly downward and to the left. There was no wound of exit. Our other abdominal patient received a rifle bullet at about 400 yards while lying on his left side. The bullet entered in the right supraclavicular fossa, pierced the scapula and followed the contour of the chest downward until it reached the eighth rib in the posterior axillary line. Here it comminuted the eighth, ninth and tenth ribs, the fragments of which acted as secondary missiles and tore open the pleura and peritoneum and deeply lacerated the liver. Despite the freest drainage, the patient died from peritonitis and pyopneumothorax.

Our experience with bullet perforations of the knees was rather unhappy. Of six cases, two made a spontaneous and functional recovery. In the Budinger clinic, when such wounds became septic the custom was to make lateral and posterior incisions over the joint, to open the subcrural bursa freely above and to irrigate with a solution of hydrogen peroxid. One patient recovered after I had replaced the peroxid irrigations by salt solution. The other cases, in which amputation could have been successfully performed at the very beginning of their symptoms of increasing general sepsis, were allowed to drift into deeper sepsis, despite my requests to be permitted to amputate. This permission was given in one case already overwhelmed by toxic poison, but naturally the operation was too late.

I believe that the reluctance to amputate was the result of the altogether laudable desire to keep down the percentage of amputations; but in my opinion conservatism has little place in septic bullet wounds of the knee joints after the first evidence of beginning generalized poisoning.

Our method of making the flaps as long as possible, depending on the extent of involvement of the skin, rolling them back until they paralleled the direction of the limb and holding them in this position by the dressing, gave the freest possible drainage, kept every part of the large wound open to daily inspection, and minimized the amount of secondary operative procedure.

Recovery took place in all of our lung perforations. One patient was a Russian who recovered despite his voluntary starvation for the first three days after admission, for fear he would be given poison in his food and in spite of pneumothorax on the injured side, pneumonia of the other lung, a bayonet wound in the right scapular region, another in the left abdominal wall and two deep and ugly shrapnel tears in the groins. In these cases the common symptom remaining at the time of discharge was a slight dyspnea, which became a little noticeable on exertion.

Death occurred in three of our vertebral cases. One patient, with a transverse division of the lower cervical cord, died shortly after admission; another, judged too weak to withstand operation, died from meningitis following the lodgment of a shrapnel ball between the first and second lumbar vertebrae, with consequent spinal fistula and infection; the third, completely paralyzed below the nipples, and dyspneic, had an oblique wound of entrance just over the right transverse process of the fourth dorsal vertebra. A wide laminectomy of the fourth, fifth and sixth dorsal vertebrae exposed a perforated and fractured base of the spinous process of the fifth. The bullet had lodged in the deep muscles of the left side and had not come into contact with the cord. Nevertheless, the cord was so pulpified and so like custard in structure, that it could scarcely be recognized. This was a marked example of cord disruption produced by molecular vibration. This case is in contrast to another, presenting a small clean wound of entrance about 5 cm. to the right of the body of the eighth dorsal. The bullet passed through the spinous process of this vertebrae, in much the same manner as in the previous case, but emerged, carrying much of this process before it as a secondary missile which tore out the whole adjacent mass of spinal muscles and left a great, gaping hole of about the size of two fists. The patient recovered without a symptom referable to any disturbance of the cord, although he was left with a sharp left lateral curve.

Another patient recovered after the removal of a shrapnel bullet from between the third and fourth lumbar vertebrae, where it had driven spicules of bone ahead of it and was pressing slightly on the cord. The only symptoms before operation, apart from the local discomfort, were paresthesia and a sensation of cold in the right heel and the toes of the right foot.

Still another patient lost the right transverse process of the sixth cervical vertebrae, the bullet slipping benignantly through the cervical plexus, to lodge in the mastoid. A continuous neuralgic pain and buzzing in

the right ear ceased with the removal of the missile from the mastoid, but the patient had a noticeable right torticollis on discharge.

The immunity of the great cervical vessels and nerves seems to be remarkable, for we had many cases in which bullets passed through the whole length of the neck, or crossed the whole neck obliquely from above downward, or passed transversely without the slightest injury to nerves or vessels. These were the fortunate cases, however, for in those in which lacerations of the great vessels occurred, the men never lived to achieve even first aid attention.

If there were time for diagnostic reflection on the firing line, a study of the rapidly fatal cases would give interesting symptomatic and prognostic data.

Wounds of the head are probably the most frequent of all wounds, and are possibly the most frequent causes of immediate death. This is certainly true of trench warfare, and yet the large number of cases of wounded hands and arms which reach the base and civil hospitals give the false impression that these are the parts most frequently wounded.

Practically every close-range shot of the cranium is fatal at once, from complete disruption of the brain and fragmentation of the skull. The length of the path of the bullet in the brain, however, influences the amount of destruction and the chance of recovery, as the destructive effect is in direct proportion to the amount of brain substance set in motion by the energy of the bullet. The shots in which recovery is most hopeful are those in which the frontal bone is guttered, with a corresponding guttering of the frontal convolutions. The tolerance of this part of the brain is far greater than has been supposed, and I have seen a number of cases of this sort in which the patients recovered from all the immediate effects of their injury.

In trephining these cases, and they all come to trephine or elevation of depressed bone, the caution is often necessary of waiting until the usual mild infection has subsided. Neglect of this rather elementary precaution was the direct cause of death in four successive trephine cases in one of the Vienna services. When symptoms of an abscess of the brain, or other focal symptoms make interference necessary under such conditions, a guarded prognosis must be made.

In cranial wounds the most careful roentgenographic study is often necessary for accurate diagnosis and determination of the extent of subcutaneous destruction. In the case of Lieutenant F., a bullet traversed the right neck and face, ruptured the eye by indirect violence and emerged through the right external angular process. Under the Roentgen ray, an apparently beginning trismus of tetanus resolved itself into a comminution of the right coronoid process. In a case of through-and-through perforation of both petrous bones, a syndrome which simulated the meningitis of an infected basilar fracture was shown by Roentgen ray to be merely a phlegmon of the wound of exit. In one case a small abscess of the brain was recognized roentgenographically and evacuated before dangerous extension could occur. In another case of gutter shot of the outer table, exactly over the sagittal suture, no fracture of the inner table could be found by repeated frontal and lateral roentgenograms, and as the only symptoms were slight headache and vertigo, the rule of exploring all these cases was departed from and the patient made a complete recovery.

Wounds of the eyes and of their immediate surroundings were so diverse and interesting that they have been made the subject of a separate paper. One of their remarkable features was the frequency with which the front of the external wall of the orbit was cleanly shot away, the right orbit suffering about twice as often as the left. In nearly every case the resulting exposure was so like that sought from an ideal Krönlein operation that the injury became known as the "Krönlein shot," at my suggestion. The number of totally blind, following the destruction of both eyes or optic nerves, is appalling.

The cases of bayonet wounds which reached the general hospital were more or less trivial. Bayonet fighting is very deadly, and as the wounds are high, in the neck or upper chest, death usually follows promptly from hemorrhage. The modern bayonet is used as an aid in intrenching and also, if saw-toothed, is often used for such purposes as sawing wood; hence infection is the rule in the surviving cases.

Apparently all the writing of earlier wars had left no impress on the doctors at the front, for in the earlier days of the war, many patients returned beautifully tamponaded with gauze, or with pads of cotton next to the wound and so dried and hardened by the secretion that they formed most efficient plugs. Iodoform powder and tincture of iodin were also used, but in common with the cotton dressings, they coagulated the discharge of blood and serum and patients often reached the general hospitals with the skin distended almost to bursting with thick pus, gangrenous muscle and bone fragments. Later, practice became fairly well standardized and plain gauze dressings the rule.

I venture to say that the final statistics of this war will be quite unlike those of any which preceded it. The incidence of sepsis, in the early months at least, can certainly not be duplicated since medieval times; the proportion of permanently disabled men seems far greater than ever, and the immediate mortality is very high, as a result of the close-range firing, the frequency and extent of hand-to-hand combat and the avowed determination of whole army corps to give no quarter.

One may further venture to ask if the large number of slightly wounded who are so promptly returned to the front in this war may not be a considerable factor in its prolongation.

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Sanitary Improvement in Toronto.—In 1912 a house-to-house inspection revealed 17,181 yard privies in Toronto. In December, 1914, there were only 4,890. In two years the Department of Health abolished 12,291 privies, a very satisfactory record and one probably unique on the continent of America.——The general death rate for Toronto in 1914 was lower than that attained in any American or Britsh city in 1913, being 11.2, while that for 1913 was 12.9.——The improvement in the death rates in Toronto from typhoid fever, scarlet fever and diphtheria is seen in the following statistics: In 1910 the death rate per 100,000 in the above order was 40.9, 23.8, 42; in 1914 it was 7.7, 6.6, 16. This shows an improvement percentage of 81, 72, 62. Altogether, Toronto had 594 fewer deaths than in the previous year. Ordinarily it is customary to give credit for such good work to the health departments; but in Toronto, a chiropractor rushes into public print to state that the reason lies in the fact that Toronto is blessed with more chiropractors than any other city in America, and that diseases are, therefore, more quickly cured. Where do the osteopaths, neuropaths and the Christian Scientists come in as regards this great preventive work?

THE SPINAL FLUID IN PNEUMONIA

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AND
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Perhaps of all the conditions with which the clinician is confronted, none offers as many difficulties in prognosis as lobar pneumonia. With as far as can be determined the same degree of resistance and lung involvement, some patients have relatively mild infections, while others are overwhelmed. With the idea of perhaps finding some cause for the marked physical and mental depression so often seen in the condition, lumbar punctures were made in a series of cases of the disease, and the fluid examined chemically and bacteriologically. At the same time an effort was made to correlate other clinical phenomena so that a fairly accurate prognosis of the individual case might be given.

Our material has been gathered from the wards of Lincoln Hospital, from the services of Drs. L. F.

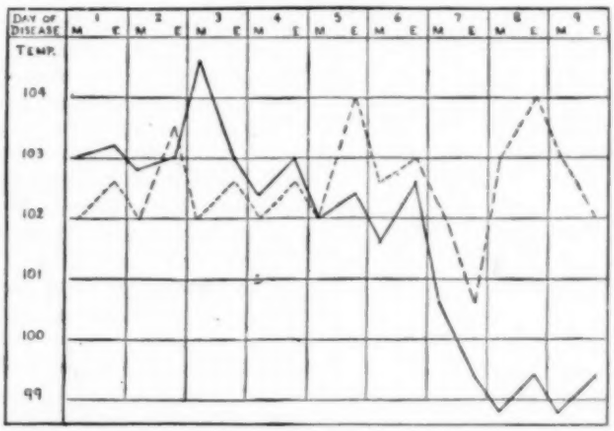

Chart 1.—Temperature chart. In this and the following charts, the solid line denotes recoveries, and the broken line, deaths.

Bishop, L. Scheerer and F. Barett, to whom we are indebted for the privilege of using the case histories. The series comprises 145 patients of whom sixty-one died and eighty-four recovered, giving a mortality of 42 per cent. The cases were admitted between Nov. 1, 1913, and Jan. 31, 1915. The high mortality rate is due to the type of case admitted, the greater number being underfed, overworked, alcoholic laborers. In our survey we have considered beside the spinal fluid, the temperature curve, the leukocyte count, the results of bacteriologic examinations, and the blood pressure curve.

In our analysis of the temperature we have omitted the four-hour periods, taking, instead, the 8 a. m. reading as the morning temperature and the 8 p. m. reading as that of the evening. In computing the curve we have taken the average of all temperatures so recorded up to and including the ninth day of the disease.

The classical temperature curve of pneumonia is represented as having an initial high point, followed by an irregular plateau lasting three, five, seven, or nine days and then falling to normal either by lysis or crisis. Our analysis, however (Chart 1), shows a difference in the curve in fatal and non-fatal cases. The peak of the curve in the non-fatal cases occurs on the third day, in contrast to that of the fatal cases, which occurs on the fifth day. It is also interesting to note that the peak in each type of case occurs two days after the peak in the leukocyte curve.

As will be noted in Charts 2 and 3, non-fatal cases have their maximum leukocytosis on the first day of the disease, and after the first day the curve slowly

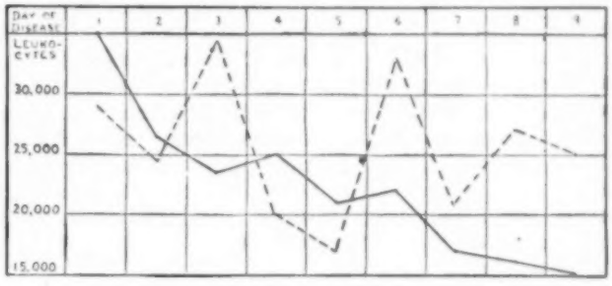

Chart 2.—Leukocyte curve.

drops but does not reach normal for fully ten days after the crisis. The fatal cases, on the other hand, show their maximum leukocytosis on the third day, the curve both before and after this day being decidedly irregular.

The differential count also shows a difference in the two types, the non-fatal cases showing a maximum polynuclear increase on the third and fourth day, and then falling, while the fatal cases show a gradual increase to the sixth day.

According to some observers, the finding of pneumococci in the blood stream is dependent to a greater or lesser extent on the details of technic. In all of our cultures, calcium carbonate broth was used, in about the proportion of 1 c.c. of blood to 30 c.c. of the medium. In our series of positive blood cultures, forty-six patients (56 per cent.) recovered, and thirty-six (44 per cent.) died, while of the negative blood cultures, twenty-eight (100 per cent.) recovered. A negative blood culture, according to our results, can be interpreted as of good omen.

A much more interesting series of observations was first noted by the resident staff men, Drs. Johnston and Hochman. Routine spinal punctures were per-

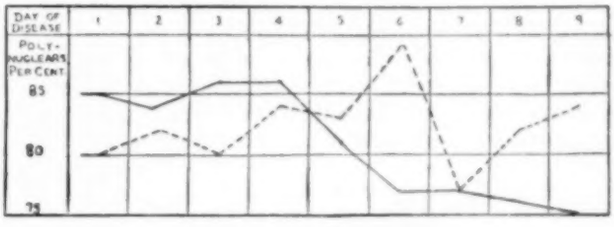

Chart 3.—Polynuclear curve.

formed in a series of cases irrespective as to the occurrence of meningeal symptoms. In this series, of those dying, fourteen (87 per cent.) showed pneumococci on culture, while two (13 per cent.) were negative; in contrast, of those recovering, fifteen (34 per cent.) gave positive cultures, and twenty-eight (66 per cent.) were negative. All of the spinal fluids giving positive cultures were positive for both sugar and globulin. The average cell count in those dying

was 214, while in those recovering it was fifty. The fluids negative to culture showed a very slight increase in cells (thirty), but were otherwise normal.

In but one instance of the entire series was the spinal fluid of such a character that it might be termed purulent, and this was the only case showing meningeal symptoms. All of the patients showing positive cultures were profoundly depressed, reacted badly to the infection, and for the most part were markedly delirious.

No attempt was made to identify the strain of pneumococci; however, a few animal inoculations with the cultures were made. Of ten positive blood cultures injected into mice subcutaneously, four killed the animals, and in three others the pneumococcus could be demonstrated in the blood stream forty-eight hours after injection. Of ten cultures of spinal fluid injected in a similar manner, three mice died, and the pneumococcus could be demonstrated in the blood stream of four others after forty-eight hours.

Another way of measuring the resistance of the patient is that of noting the effect of the toxemia on the vascular system.

In our series only the systolic pressure has been considered, no attempt being made to estimate the cardiac load. As will be noted (chart 4), the blood pressure in the fatal cases continues to fall from an initial high point, in marked contrast to the cases of recovery in which an irregular pressure curve is observed.

The frequency of the various signs is given in the appended table. In our series the presence of two or more has been certain in giving the prognosis; but when but one is present the method is unreliable.

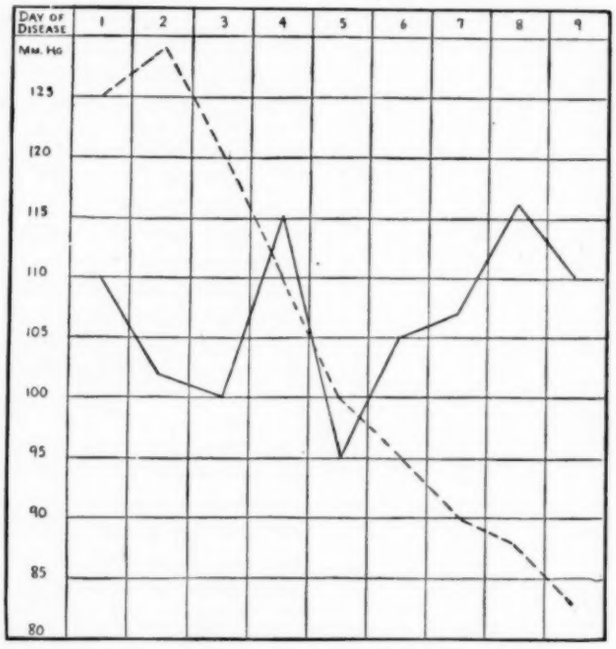

Chart 4.—Systolic blood pressure curve.

As a result of our survey, it appears that pneumococci are present with much greater frequency in the spinal fluid than is usually thought to be the case without the presence of meningeal symptoms. The early lysis of pneumococci, with the liberation of the endotoxin and its close proximity to vital centers, may well explain the profound and sudden cardiovascular collapses, as well as the marked mental symptoms so often noted. Of good prognostic import are a negative blood culture, a negative spinal fluid culture, a falling curve of leukocytosis, and a maximum temperature on the third day. On the other hand, the finding of pneumococci of the spinal fluid and blood, a maximum temperature on the fifth day, an irregular leukocyte curve with a maximum on the third day, and a steadily falling blood pressure are in our experience indications of a fatal termination.

FREQUENCY OF THE VARIOUS SIGNS

	Maximum Temperature Day		Falling Blood Pressure	Falling Leukocytosis
	Third	Fifth		
Dying	5	56	43	2
Recovery ...	64	20	8	75

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WHAT IS THE PRESENT STATUS OF AUTOSERUM IN SKIN DISEASES?

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Having been an enthusiastic follower of autoserum therapy in skin diseases, and having given it a thorough and impartial trial, I regret to acknowledge my belief that autoserum therapy will prove another "therapeutic fiasco." In the paper read by me before the Section on Dermatology of the American Medical Association in 1913, entitled "Empiricism in Dermatologic Therapeutics,"[1] I was accused of being too much imbued with nihilistic views in regard to therapy of diseases. In this paper I stated that for lack of knowledge of the etiology of the majority of diseases, we physicians are always ready to adopt and exalt any new remedy or method that may have some promising feature. How any thinking physician can, in the present developmental era, not become a therapeutic nihilist, is rather an enigma to me.

Dr C. J. White,[2] in his chairman's address before the same section in 1912, said:

> The subject of my address is the shortcomings of dermatology—perhaps not a flattering theme to choose for this occasion, but one which impresses me more and more the older I grow and the more intimately I become involved in dermatologic practice and teaching.

Acknowledging the fact that only 40 per cent. of the common noninfectious skin diseases are of known etiology, Dr. White asks, "What must we confess of our etiologic knowledge?" This also applies to general practice. The fact that unknown etiology leads to uncertain and speculative therapeutics prompted Dr. Zeisler,[3] in the chairman's address before the Section on Dermatology in 1913, to complain of faddism in therapeutics.

It is true that clinical pictures, histologic changes and pathologic conditions of skin diseases are easily recognized by the dermatologist, but since the true etiology in the majority of them is unknown, how,

1. Ravitch, M. L.: Empiricism in Dermatologic Therapeutics, THE JOURNAL A. M. A., July 26, 1913, p. 265.
2. White, Charles J.: The Shortcomings of Dermatology, THE JOURNAL A. M. A., June 22, 1912, p. 1915.
3. Zeisler, Joseph: Our Tendency to Fads, THE JOURNAL A. M. A., Aug. 9, 1913, p. 379.

then, can we expect a rational scientific therapy? So, when our old friends "psoriatics," chronic "urticarials," "alopeciacs," "lichenites" and other chronics come to our office with the expectation of being cured, we are anxious to adopt any new method that has some possible promise of success. We are greatly indebted to Gottheil and Satenstein[4] and to Howard Fox[5] and also to a few foreign dermatologists, who brought forward new ideas and new methods for the treatment of chronic dermatoses. We have eagerly listened to them and read their papers, and we too have become hopeful and enthusiastic over their new method of treatment by autoserums, though the few cases quoted by them were selected ones and their results have been variously good, "near-good" and indifferent.

Of the foreign investigators Spiethoff[6] was the first one to use autogenous serum, while others have used the blood and serum from other individuals.

Heuck,[7] who is often quoted by our American investigators, tried the method of Mayer and Linser and had absolutely no results in psoriasis, neurodermites and chronic eczema. Favorable results were obtained by him in pemphigus and in Duhring's disease, pruritus, strophulus and chronic urticaria.

Veiel had success with serum therapy in pruritus due to pregnancy. Bering asserts that he obtained better results from artificial salt solution than from serum. Bruck claims success with artificial serum, that is, an aqueous solution of various salts, and also says that some cases are rather aggravated by using autogenous serums. Heuck doubts the efficacy of artificial serums.

Very few cases have been reported by the foreign investigators since 1912, though the new method was originated in 1910. The Russian dermatologists, who are rather conservative therapeutists, have never tried this new method. The serum treatment, after being almost abandoned in the old country in 1912, was revived in this country in 1913, and Drs. Gottheil and Satenstein deserve most of the credit for this revival.

Is it rational and scientific? No method can be called rational and scientific until its action can be interpreted. Since we are unable to understand the action of human serum in the treatment of diseases, why the withdrawal of blood, the separation of its serum, and return of this serum to the body should have caused any change in this serum which could cause reactions in the organism, and how such a change, if it does take place, does really affect the organism, we cannot put this method in the class of rational remedial agents. Although improvement has followed its employment in certain cases of psoriasis, how can we credit the improvement to the autoserum in the face of the fact that its action is useless without employment of chrysarobin, the most important and most active remedy in psoriasis.

Hillario's supposition, that autogenous serum seemingly diminishes the resistance of psoriatic tissue, does not apply to autoserum alone, according to my experiences in many cases. In my experiments with autogenous and artificial serum, with and without the addition of lecithin, intramuscular injections of cacodylate of soda or mercury and sterilized chaulmoogra oil, and coincident formations of abscesses from various sources, we have seen as beautiful and temporary results as with autogenous serum alone. In fact, any new method, pushed with enthusiastic persistence and arousing psychic influence in the patient, will be met with temporary good results. Had I published my experiments with other methods, I could have also given glowing results at the time of the beginning of the administration of these methods; but as time goes on, my ardor and enthusiasm had to give way to real, cold facts and disappointments. According to my experience, this new method of autogenous serum therapy should be accorded a place in therapeutics, but as to its universal adoption in the treatment of chronic dermatoses, psoriasis in particular, I find its usefulness limited to a very few selected cases only, for the following reasons:

1. Intravenous injection is rather a dangerous procedure, particularly more so, when from six to ten injections must be administered.

2. Only in a minority of individuals, and especially seldom in women, do we find cubital veins suitable for repeated venous punctures and injections.

3. In repeated venopunctures we must beware of endophlebitis.

4. The technic is not simple or absolutely void of infection, no matter how cautious we may be, and the fact that I had no infection in my many cases I attribute as much to good luck as to my extreme care to maintain asepsis.

5. The length of procedure, the risk, the uncertainty of good results and the expense of treatment make it rather prohibitive in the majority of cases.

6. We are in total ignorance of its action, and of the dangers that may accompany such action.

7. Investigators fail to state the real percentage of cures.

8. In the statistics which I have gathered of over 5,000 injections, a comparatively small percentage of cures were reported, and the percentage shrinks as further reports come in, and cases are transferred from the "permanently cured" to the temporarily relieved.

In my autoserum experiments I used precisely the same method as advocated by Dr. W. S. Gottheil. Dr. S. A. Steinberg, my chemist and pathologist, who had a large experience in intravenous injections, had full charge of my work. I also had splendid facilities for clinical experimentation, as my "chronics" were anxious and willing to cooperate with me in order to get rid of their ailments. I employed a very powerful centrifuge making at least 6,000 revolutions a minute. I was able to separate the serum thoroughly in about an hour. According to Dr. Steinberg, a half hour centrifugation is not sufficient for complete separation without loss of some of the serum. No unnecessary transfers of blood and serum were made. Thorough asepsis was maintained; large-caliber smooth platinum needles were used; 20-c.c. all glass Luer syringes were used, at least two being sterilized and laid out for each withdrawal; the blood was discharged from the syringes directly into 50-c.c. glass centrifuge tubes, which were immediately covered with sterile cloths. The blood was allowed to clot thoroughly in the ice box for at least thirty

4. Gottheil, W. S., and Satenstein, D. L.: The Autoserum Treatment in Dermatology, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1190.
5. Fox, Howard: Autogenous Serum in the Treatment of Psoriasis, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2190.
6. Spiethoff, B.: Zur Behandlung mit Eigenserum und Eigenblut, Med. Klin., 1913, ix, 947.
7. Heuck, W.: Erfahrungen über Behandlung Hautkranken mit Menschenserum, Muenchen. med. Wchnschr., 1912, lix.

minutes. The serum could not be reinjected within an hour, as asserted by Dr. Gottheil. It is absolutely impossible if done properly, thoroughly and cautiously. At least two hours should be allowed for this procedure. The amount of blood that we were able to draw from the cubital veins varied from 40 to 90 c.c. The serum was never reinjected in the same vein used for the withdrawal. Only patients with suitable veins are fit subjects for this procedure. Women as a rule are poor subjects, for very few of them have well-developed superficial veins in the arm.

I have divided my subjects into three groups:

1. Subjects suitable for autoserum.

2. Subjects suitable for artificial and lecithinized serum.

3. Subjects suitable only for intramuscular injection of cacodylate of soda, mercury and sterilized chaulmoogra oil.

From four to eight autoserum injections were given, the same number of artificial serum injections were given; from ten to twenty of lecithinized artificial serum were administered; the intramuscular injections of cacodylates varied from twelve to twenty-five.

In the first group three subjects were unable to take the autoserum treatment after the second injection; artificial serum and lecithinized serum were more easily borne by the majority of patients. The mercury cacodylate injections were better tolerated than the sodium cacodylate injections. Ninety per cent. of our subjects were "psoriatics." Two per cent. chrysarobin ointment was used in all the cases of psoriasis.

The conclusions which I have drawn may be summed up as follows:

1. The autoserum is not an ideal or an effective remedy. It was found by me to be absolutely ineffective in urticaria and chronic eczema. It gave striking results in a very obstinate case of psoriasis of thirty-two years' duration. How long the patient will be free from the eruption, time only can tell. The patient is still using a very mild chrysarobin ointment. Sixty per cent. of this class did not respond at all to autoserum, while the rest of the subjects were benefited only temporarily.

2. I had as good temporary results from lecithinized serum, plain artificial serum and injections of cacodylate of soda and mercury.

3. In psoriasis none of the serums made any impression on the disease without the use of chrysarobin.

4. Urticaria and pruritus were not materially benefited by serum of any kind. This must be due to the fact that urticaria and pruritus are in all probability due to some focal infection or internal metabolistic disarrangements.

5. A judicial and careful use of chrysarobin externally, with the employment of a suitable drug internally, is as efficient as the autoserum therapy.

It is rather a peculiar fact in my experience with autoserum in psoriasis that my first cases seemingly improved more rapidly than the subsequent ones. Whether this was due to the waning of my enthusiasm and the resultant lessened confidence on the part of the patient diminishing the psychic factor, I do not know, but my method has been the same throughout my work, while the results have become more unfavorable.

Atherton Building.

MUSHROOM POISONING

SOME OBSERVATIONS IN A CASE DUE TO AMANITA PHALLOIDES *

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AND
L. G. ROWNTREE, M.D.
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During the months of August and September, 1914, at least thirty cases of mushroom poisoning were reported in Baltimore, with seven deaths. In September, 1911, twenty-two deaths from this cause occurred in the vicinity of New York in one period of ten days (Ford). The undeniable increase in the incidence of poisoning by fungi, together with findings which throw new light on certain phases of the toxic manifestations, are responsible for the appearance of this report.

Sept. 13, 1914, at 2 p. m., eleven persons ate some stew made of mushrooms gathered that day in the woods.

J. L. became ill nine hours later with abdominal pain, diarrhea and vomiting. The next day, he noticed that he could not see objects at a distance, but was able to see things nearby. He says that his conjunctivae were yellow about the second day. The acute illness lasted three days. L. L., who ate sparingly of the stew, was taken sick eleven hours later. He had the acute symptoms described above, lasting only one and one-half days. J. P. was ill after nineteen hours, but was not under medical observation. Four children were, apparently, not very sick. Two young girls were sick about nineteen hours after eating the stew. They were said to have been jaundiced. One died on the fifth and the other on the seventh day.

Our patient (98150), A. L., was seized with abdominal pain, diarrhea and vomiting nine hours after eating the mushrooms. She was seen the next morning by Dr. McCormick. At this time she was complaining of violent burning pain in the epigastrium and intense thirst. Vomiting was continuous and unaccompanied with much retching. Diarrhea was marked—a fluid stool every five minutes. She was pale, respirations were shallow, pulse imperceptible at the wrist, extremities cold, and she was in collapse. The breath had a fetid odor. There was no perspiration or salivation, no anuria, oliguria, hematuria, hematemesis or melena. Rapid loss in weight occurred. On the second day, the pupils were seen to be tightly contracted, not responding to light. This lasted for about a week. The pupils were not contracted, however, until after opiates were administered. On the third day delirium developed—worse at night. Vomiting, diarrhea and intense thirst continued. On the fourth day and again on the eighth day she had a "weak spell" in which she was exhausted and pale, the pulse was imperceptible at the wrist, and the respirations were shallow. These attacks lasted between three and four hours. After this, she became constipated. Her tongue was noticed to be dry, glazed and red, and the mucous membrane peeled from the inside of her cheeks and gums. The mental symptoms and the vomiting persisted and were present on admission to the hospital two weeks after eating the mushrooms.

On admission, Sept. 28, 1914, the patient was irrational, confused, and at times delirious and violent. She vomited at frequent intervals and continually called for water. She was very restless in bed, and her chin, shoulders, elbows, hips and knees were excoriated. The pupils were normal. The lips and mouth were covered with brownish blood, which seemed to be oozing from the gums. The mucous membranes were bright and glazed. The breath was very foul. The reflexes were all somewhat exaggerated, with a positive Babinski and Oppenheim on both sides, for which no explanation could be found. The eyegrounds were normal.

* From the Medical Clinic of the Johns Hopkins Hospital, and the Pharmacological Department of the Johns Hopkins University.

Four days after admission she had another "weak spell" with marked delirium. The respirations were deep and sighing, extremities very cold, pulse of small volume, slow and irregular. Blood pressure was low. These "weak spells" were repeated daily for four or five days, and were relieved by hypodermoclysis.

During her first week in the hospital, she took scarcely any nourishment. After the first few days, the stools became rather frequent and involuntary. Urine was passed only at long intervals, but the voidings were large.

The bleeding from the gums persisted for about ten days, and then stopped spontaneously. At this time, however, the patient started to bleed from the rectum. At first, the blood was small in amount, bright pink, not clotted. On local examination of the rectum, nothing was found to account for this bleeding, which continued until death.

About a week before death, the skin became very dry, and the hands and nose began to peel. At the same time, the patient began to complain of pain in the lower abdomen, and voiding became more frequent and apparently painful. The urine showed numbers of pus cells, but no blood. *Bacillus coli* was grown in cultures from a catheterized specimen of urine.

Five days after admission, a hard, tender swelling was noted in the region of the right parotid. This gradually increased in size and showed evidences of suppuration in a week. At this time, pus was seen running from the right ear, apparently coming from the suppurating parotid. The following day, the abscess was incised and a moderate amount of pus obtained. Cultures showed *Staphylococcus aureus.*

Up to this time, the patient had been gradually improving, save for the cystitis and parotitis. She had become more rational and seemed to take more notice of things about her. Her appetite, which was, at first, very capricious, had returned, and she seemed to enjoy her food.

The blood picture on admission was as follows: red blood cells, 6,456,000; white blood cells, 16,720, hemoglobin (Sahli), 96 per cent. The leukocytosis was polymorphonuclear in type (91 per cent. polymorphonuclears and 9 per cent. mononuclears).

The Wassermann reaction was negative.

The urine on admission was yellow, clear, specific gravity 1.008, acid, no sugar, a heavy cloud of albumin (estimated at about 2 gm. per liter), many hyaline and granular casts, a few pus cells, no red blood cells. Guaiac, acetone, indican, and bile tests were negative. In subsequent examinations, the specific gravity remained between 1.006 and 1.014, and the reaction became less acid. The albumin dropped in a few days to 0.25 gm. per liter, and soon to only a faint trace. The casts diminished greatly in numbers. The pus cells increased enormously with the onset of the acute cystitis, but occult blood was not present until the day of death. On one examination, a week after admission, the sediment consisted almost entirely of whetstone shaped uric acid crystals.

Throughout the patient's stay in the hospital her blood pressure was low, falling to 80 mm. systolic and 60 mm. diastolic during her "weak spells."

The day following the operation on the parotid (two weeks after admission) she seemed just as usual until between 3 and 4 p. m., although the temperature, hitherto subnormal, from 96 to 97.5 F., had risen to 102. At this time, she suddenly went into a semiconscious state, and could not be roused. The temperature rose suddenly from 102 (where it had been for the last two days) to 107, the pulse increasing to 140. Within an hour, her respirations became rapid. Two hours later, she became rather rigid, and there was a tremor of both hands. There were no changes in physical signs or in the urine at this time. The patient died seven hours after the onset of these symptoms. Death occurred October 11, twenty-eight days after eating the mushrooms.

Owing to the resemblance that the pathologic picture in these cases is said to bear to that in phosphorus poisoning, we were led to investigate the functional condition of the liver, but it became apparent immediately, from a blood urea determination, that the kidney rather than the liver was the seat of the most interesting functional changes. The functional investigation yielded the following results:

October 3 (five days after admission) the phenolsulphonephthalein test showed an excretion of only 3 per cent. for two hours; the blood showed a total non-protein-nitrogen content of 260 mg., urea nitrogen of 214 mg. and amino-acid nitrogen of 9.2 mg. per hundred c.c. The fibrinogen content amounted to 610 mg. per hundred c.c., and the lipolytic activity to an acid production of 0.20 c.c. tenth-normal. A specimen of urine from 6:30 a. m., to 1 p. m., amounting to 1,550 c.c., had a specific gravity of 1.012, and a urea content of 1.44 per cent.

October 4, Bauer's galactose test was applied; the patient did not tolerate 30 gm.

October 5, the phenolsulphonephthalein excretion was 2 per cent. for two hours, the blood urea nitrogen, 191 mg. per hundred c.c., and the freezing point of the serum, —0.64 degree. The diastatic acitvity of the urine showed $d\ \frac{38°}{30'} = 0$ The twenty-four hour specimen of urine amounted to 2,190 c.c. The nitrogen was 19 gm., with a partition of 84 per cent. urea-nitrogen and 2.1 per cent. ammonia-nitrogen. Unfortunately, it was impossible to obtain another complete twenty-four-hour specimen of urine.

October 8, the blood urea-nitrogen had fallen to 176 mg.; October 10, the phenolsulphonephthalein test showed an excretion of 23 per cent. in two hours. At necropsy, October 12, the blood urea-nitrogen had further dcreased to 168 mg.

The methods employed in the various determinations were those which we have previously used and described in studies on liver and kidney function.[1] A discussion of the normal limits and of the significance of the findings of the various tests will be found in that article.

The inability to excrete phenolsulphonephthalein, the very high total non-protein and urea-nitrogen of the blood, the lowered freezing point of the serum, and the absence of diastatic activity in the urine show conclusively that we are here dealing with extremely impaired renal function. The positive findings in the galactose test, and the high concentration of amino-acid in the blood would tend to show decreased function of the liver, while the lipase and fibrinogen findings are normal. It is rather striking to find the increased excretion of urine and the large excretion of nitrogen in association with cumulative phenomena in the blood. This combination, which was noted independently by Mosenthal[2] in uranium nephritis, we had previously encountered in phosphorus poisoning[3] in dogs.

NECROPSY NO. 4199 ABSTRACTED FROM DR. STEVENSON'S REPORT

"Liver weighs 1,190 gm.; is distinctly flabby; color is yellowish gray. The lobulation is distinct, the periphery of the lobules being a rather broad yellowish-gray band, the center being depressed. The prominence of the central portion varies; in some places it is very red and semiopaque, and in others it is pale red and more translucent. A very few minute gray, semitranslucent and translucent dots are seen scattered throughout the substance.

1. Rowntree, L. G.; Geraghty, J. T., and Marshall, E. K.: Comparative Value of Functional Tests in Surgical Diseases of Kidney Secondary to Obstruction in Lower Urinary Tract, Surg., Gynec. and Obst., 1914, xviii, 196. Chesney, A. M.; Marshall, E. K., Jr., and Rowntree, L. G.: Studies in Liver Functions, THE JOURNAL A. M. A., Oct. 31, 1914, p. 1533.

2. Mosenthal, H. O.: Nitrogen Metabolism and the Significance of the Non-Protein Nitrogen of the Blood in Experimental Uranium Nephritis, Arch. Int. Med., December, 1914, p. 844.

3. Marshall, E. K., Jr., and Rowntree, L. G: Unpublished work.

"Kidneys weigh together 280 gm. The left measures 12 by 6 by 3.5 cm. Capsule strips readily. On section, the cortical striations stand out distinctly, but on closer examination, have a slightly interrupted appearance. The glomeruli stand out everywhere as bright reddish dots. The pelvis of the kidneys is slightly injected.

"Pelvic organs. The bladder shows some injection. In the region of the trigonum are several minute ecchymoses.

"Intestines. The upper part of the jejunum has a distinct flush and mucosa is definitely edematous. About 1 meter down from the Treitz ligament one encounters several large submucous hemorrhages. As one proceeds down, the flushing becomes more marked, and about the middle of the ileum becomes definitely hemorrhagic, which condition is increased in degree as one proceeds to the ileocecal valve. In the colon this condition is also prominent. No definite points of free hemorrhage were encountered."

Microscopic Notes by Dr. Winternitz

Liver.—About two-thirds of the liver is unrecognizable as such. It appears as a homogeneous, stringy, pink staining mass around the hepatic vein. Scattered through this mass are vacuoles, which appear likewise in the more normal liver cells in the periportal region. Considerable lemon yellow pigment, frequently intracellular, is found in these necrotic areas. Occasional cells, chiefly red blood cells, or mononuclear cells, and rarely a polynuclear leukocyte, occur. In the outer third of the lobule, that is, in the periportal areas, the liver cells are recognizable, but they are much swollen and coarsely granular.

Kidney.—The cortex is free of scars. The tubules are dilated, their epithelium fusing indefinitely with a granular, pink staining mass found in the lumen. The epithelial cells show normal nuclei in most instances, but occasionally cross-sections of the entire tubules occur in which the cells are devoid of nuclei. More frequently, only one or two nuclei occur in the cells lining the cross-section of a tubule. Signs of activity of the nuclei occur, but no definite mitoses are found on hasty examination. The blood vessels are slightly congested, and frequently the same granular material found in the tubules may be found in the glomerular space.

Pancreas.—The conective tissue is not increased. The parenchymatous cells are swollen, but no necrosis is seen.

Lungs.—The vessels are congested. The alveoli contain serum, and occasionally a pus cell.

Spleen.—This shows a great engorgement of its pulp sinuses with blood.

Intestine.—Section of the intestine shows only a slight acute inflammatory reaction.

Anatomical Diagnosis

Mushroom poisoning. Central necrosis of liver; epithelial necrosis of kidney; acute enteritis and colitis; hemorrhagic bronchopneumonia; cloudy swelling of the viscera; hypostatic congestion of the lungs; decubitus ulcers.

Bacteriologic Report by Dr. Bloomfield

Culture (the day before death) from parotid. *Staphylococcus aureus.* Cultures from heart's blood at necropsy yielded a pure culture of a staphylococcus (about 1,000 colonies per cubic centimeter). On the original mediums, this organism seemed to grow with a yellowish tinge, but subcultures on suitable mediums after two weeks remain white.

This organism is probably to be looked on, therefore, as an agonal invader, and not as the organism which was causing the parotitis.

A few mushrooms were collected for us by L. L., who had collected those causing the poisoning. These were identified by Dr. W. W. Ford on morphologic grounds as *Amanita phalloides.*

They were tested as follows:

A mushroom weighing 23 gm., in fresh condition, was macerated with 0.8 per cent. saline, diluted to 100 c.c., and filtered. This extract in a dilution of 1:2,000 completely hemolyzed[4] in one hour 1 c.c. of a 5 per cent. suspension of rabbit's blood. Two 5 c.c. portions of this extract, in one of which the hemolysin was destroyed by heating at 65 C. (149 F.), injected into guinea pigs, killed in less than twenty hours, with typical lesions of *Amanita phalloides* poisoning.

An attempt was made to reproduce these anatomic and functional changes in animals. Owing to the lateness of the season, it was impossible to secure a sufficient amount of amanita to carry out this investigation thoroughly. A further attempt to reproduce these findings will be made as soon as material can be obtained. However, the fungi collected were utilized with the following results:

Dog, weighing 6.2 kg., was given a small amanita by stomach, October 7, and another, October 9. Symptoms of severe acute poisoning developed during the night. Vomiting and diarrhea continued for two days after ingestion of last mushroom. Albumin appeared October 12, persisting until death. There was no hemoglobinuria. The phenolsulphonephthalein excretion was normal from October 12 to 16. The blood urea-nitrogen was normal, October 9-12, 14 and 16, varying from 12 to 16 mg. The dog was eating and drinking well. On the 19th, urea-nitrogen had risen to 62 mg. Unfortunately, no phenolsulphonephthalein was taken at this time. The urine contained bile. The dog was jaundiced and in coma for some hours prior to death. It died October 20. Its weight was 4.45 kg.

Guinea Pig, weighing 255 gm., was injected, November 2, with 5 gm. fungus to 100 c.c. 0.8 per cent. salt, 5 c.c. Only slight trace of hemolysin was present. The animal was losing weight rapidly. November 9, pig was found in convulsions. It was comatose. It was killed by bleeding. Blood urea-nitrogen was 130 mg. Phenolsulphonephthalein given one hour before death showed only trace in bladder urine at necropsy, although only a small amount of urine was present; 17 per cent. excreted through bile. The weight was 185 gm.

It has been possible to learn something concerning the condition of several patients surviving mushroom poisoning. The following functional renal findings in these cases are as follows:

J. L., poisoned September 13, on October 4 showed phenolsulphonephthalein excretion of 33 per cent. for two hours, and blood urea-nitrogen of 20 mg. per hundred c.c. Urine showed no sugar, albumin or casts. October 10, phenolsulphonephthalein was 64 per cent. and blood urea-nitrogen 13 mg. Patient, however, still complains of weakness, cramp-like sensations in the legs and arms and loss of appetite.

L. L., poisoned September 13, on October 4 showed phenolsulphonephthalein 63 per cent. Urine showed trace of albumin; no sugar and no casts.

K., poisoned September 16, on October 15 showed phenolsulphonephthalein, 46 per cent.; blood urea-nitrogen, 9 mg.

F. O., poisoned October 20, on October 23 showed phenolsulphonephthalein, 70 per cent.; blood urea-nitrogen, 16 mg.

The data here presented show that the nervous and mental symptoms, which were so pronounced in this case, and which are not infrequently present in this type of poisoning, accompanied renal insufficiency, and may well have been uremic in nature. Heretofore, the tendency has been to ascribe such symptoms to the influence of some peculiar "neurotoxin" of the fungus. Renal functional studies will probably prove these symptoms to be uremic in character.

4. The toxic bodies in this fungus are a hemolysin (Kobert: St. Petersburg. med. Wchnschr., 1891, xvi, 463) and a toxin (Abel and Ford: Jour. Biol. Chem., 1907, ii, 273; Schlesinger and Ford: Jour. Biol. Chem., 1907, iii, 279; Ford: Jour. Exper. Med., 1906, viii, 437), which does not give the reactions of a protein, alkaloid or glucosid.

MOTOR APHASIA

WITH FRACTURE OF THE BASE OF THE SKULL

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NEW HAVEN, CONN.

Instances of motor aphasia in its typical form are uncommon enough to add to the intrinsic interest of the condition itself an element of novelty. This is particularly true when opportunity is given to observe the onset, the development, and the disappearance of the aphasia, as was the case in a patient recently operated on in the New Haven Hospital.

It is impossible to say whether this was an instance of the cortical or the subcortical type of motor aphasia. The capacity to write, though absent in the early days, reappeared some time before any speech whatever was attempted; and it was quite impossible, on account of the youth of the patient, to apply the Proust-Lichtheim-Déjerine test. There is no question that there was a superficial cortical lesion, for this was seen at the operation; but it is not certain that this was responsible, or at least alone responsible, for the symptoms. This lesion was on the left side, and an interesting feature of the case was that the patient was left-handed, or was so regarded; he threw a ball with the left hand but wrote with the right.

History.—January 6, while playing on the streets, the patient, a boy of 9, was knocked down by an automobile and brought immediately to the hospital. When admitted he was almost unconscious. There were two large lacerations on the right parietes and left upper occiput, but no other injuries of trunk or extremities. Fresh hemorrhage was occurring from the left ear, there was a large extravasation of blood in the left eyelid and conjunctiva, and the vomitus was bloody. There was no paralysis of the extremities and the blood pressure was 120. The patient was put to bed for observation, and during the day presented the following features: There was frequent vomiting of bloody material. The pulse become slower, and unconsciousness deepened. Fresh hemorrhage appeared from the left ear, and the ecchymosis about the eye increased. Frequent convulsions of the right arm and leg were observed, and occasional convulsions on the left side. The blood pressure remained about the same (118).

Operation and After-History.—Ten hours after admission a left subtemporal decompression was done. When the skull was opened a bulging brain was encountered and beneath the dura there was a large amount of bloody fluid. The dura was widely opened and a superficial laceration of the underlying brain substance was plainly visible. This was thought to be in the precentral gyrus and the possibility of the development of an aphasia was suggested. Rubber-tissue drains were inserted and the usual closure done.

For the first few days after operation there was abundant drainage of clear cerebrospinal fluid, the amount in the first twenty-four hours being sufficient to soak the dressing and the pillow covers.

During these early days the patient slept a good deal; when awake he either tossed about in a state of extreme restlessness, or lay perfectly quiet, staring blindly into space. There was no true blindness; the eye-grounds were negative, save for a slight and rapidly disappearing edema on the left side, and the dilated pupils reacted slowly to light and accommodation. The child took no food, and rectal feeding was extremely unsatisfactory on account of restlessness. The patient showed no signs of intelligence, took no notice of what went on about him and his behavior suggested that of a decerebrated animal.

On the sixth day the child had frequent right-side convulsions, which began at the mouth and advanced to the neck and arm. These were rhythmic in character (about 90 to the minute) and continued through most of the day. The wound was examined; clear cerebrospinal fluid was still draining out, there were no signs of clot or infection, and the brain, still under tension, was causing the skin to bulge markedly. By night the convulsions had ceased and they did not reappear. The eyes were at this time almost continually in the position of left conjugate deviation. Hippus was present, the left pupil was larger than the right, and both reacted well to light and accommodation. Both optic nerves were slightly pale; the left fundus showed slight edema. There had been up to this time very little advance mentally. The child swallowed milk, but with effort and very awkwardly.

During the next week there was slight but definite daily improvement in mental condition. The child began to lose his fixed stare, and to move his eyes about when people entered the room. His face brightened occasionally, and apparently he began to take in things that were said, though still making no response. By the third week the facial expression had become nearly normal, the eyes and face brightening now and then, and the child breaking into a smile when amused.

February 5: The clinical picture is now typical of Broca's cortical motor aphasia. There is no apraxia, pencils and other common objects being recognized and properly used. The child understands spoken words. He does not read, but understands when read to. He throws a ball accurately with the left hand, and catches well. He has almost no initiative, but does many things when told. When shown a cat and told to write the word he would not do so; but he writes slowly and not well from copy. To-day he begins to articulate words after they are pronounced for him. He speaks, when he does speak, always in a whisper, and his attempts to repeat spoken words (like "doctor" and "good morning") though fairly successful, are accompanied by great efforts of lips and forehead, that amount almost to contortions. Except for this repetition of words spoken for him he remains silent.

February 9: The wound has healed entirely and the brain, which for the first two weeks and a half bulged markedly, has now subsided so that the skin over it is level. The patient continues to write accurately from copy but refuses to write from dictation. Articulation is now pretty clear and he repeats what is said to him without the previous extreme facial distortion, though with a good deal more than normal effort.

A striking feature is the tendency to mimicry. For example, if one says "Say good morning, Paul," he repeats all four words. Or, when asked "What is your name, Paul?" he repeated the question; though when asked to write his last name he did it correctly.

When shown a ball and asked to write the word, he attempts to draw it. When asked to name a ball he says "pencil" or "box" or anything that occurs to him, though he understands the use of a ball perfectly. When asked to write the word "ball," he makes no effort; though if one says "Write b-a-l-l," he starts correctly but finishes incorrectly, putting down b-a, then (apparently from confusion with his own name) inserting a "u," and then, from fatigue, petering out entirely. This fatigue confusion has been noticeable throughout; his mind tires easily so that he often fails to finish writing a word, which he has begun correctly.

The facial expression, while inactive for a child, is otherwise normal: the eyes move about actively and the patient smiles when tickled or amused. The patient now usually names correctly common objects which are shown to him, though this is not always the case. For example, when shown a ball he called it a box though when told to say ball he repeated it correctly.

February 9: The patient sang the first verse of "Onward Christian Soldiers," correctly as to words but practically all on one note. This was quite spontaneous, showing memory connection with the days before the accident. It is impossible to say whether he possesses any sense for musical tone; but he is perfectly able to match color, as shown by crayon drawings made from copy.

February 11: The patient now occasionally speaks spontaneously. This morning when he saw the snow from the window he said, "I have a flexible flyer"; and later when asked "What kind of a sled have you?" he said, "A flexible

flyer," showing a correct association of ideas, even without the visible suggestion of the snow.

He writes from copy; and can now read and correctly pronounce from writing, and also from printing, simple words. Briefly, the chief defect at present is the inability to write the names of objects seen and the tendency on occasion to miscall objects, though their use is perfectly appreciated, and they are on other occasions correctly called. Examination of the field of vision is impossible, for the patient simply repeats the examiner's question. Nor are we able to test his sense of musical key; when he sings it is always on one note. That he voluntarily associates ideas, though not always correctly, is shown by his remark to the nurse yesterday. He saw her yawning and said "You are hungry," meaning, of course, "You are sleepy." He apparently appreciates what is read to him for he smiles when it is amusing; but he does not read to himself. This morning he placed numeral blocks in correct order up to 10, and alphabetic blocks in correct order, leaving spaces for B and E which were missing.

February 24: Since last note the patient has made definite but slow progress. His general condition has been excellent. The motor aphasia still persists in the form of inability promptly to name all objects correctly, though if time is given the commoner objects are usually correctly named. He now reads well, writes well, and speaks a good deal of his own accord. His general behavior is nearly normal, though his manner is quieter than it should be at his age, and occasionally his face assumes an inexpressive form of blind stare. There is a small amount of clear fluid under the epithelium which has closed over the operative wound.

The patient's gait has been quite unsteady since getting out of bed, February 10. It is now improving but there is still some tendency to fall backward and to the left. The examination of the fields of vision, while not accurate, shows certainly that there is no marked diminution.

The curious tendency to hiss the pronounced "S" and to roll the "R," which has been present throughout, is still to be noted, though it is disappearing. The patient can tell the time of day approximately from his watch, and this he seems to have learned to do while he has been in the hospital. He cannot name correctly the food which he has eaten at the last meal. This seems to be largely a matter of memory, for immediately after the meal he can give a correct list of what he had.

March 12: There has been steady progress since the last note, and the aphasia has now almost entirely disappeared. Occasionally he forgets or confuses a word, but responses to questions are prompt and usually correct. The gait is still a little unsteady and he sways when standing. The discharge from the left ear, which has been present since the injury, has now almost ceased. Hearing is very greatly impaired on this side.

July 1: The boy is now about as he was before the accident. There is no sign of aphasia. He is still slow mentally, but his school teacher says that he has never been very active, and that he is now quite himself. His mother says that he tires a little more readily than before the accident, but otherwise she regards him as normal.

Health Conditions in the Canal Zone.—The report of Lieut-Col. Charles F. Mason, chief health officer of the Canal Zone, for January shows that during that month there were on the rolls 35,618 employees. The total number of admissions to hospitals and quarters was 988, giving a rate of 332.87 per thousand as compared with 331.27 for December and 519.62 for corresponding month of last year. The total number of deaths from all causes was 17. Of this number 13, or 4.38 per thousand, died from disease, as compared with 3.64 for the preceding month and 4.87 for January, 1914. The constantly non-effective rate was 10.11 as compared with 10.57 for the preceding month and 15.19 for January, 1914. The total admission rate for malaria in hospitals and quarters was 56.94. There were no typhoid cases and no cases of yellow fever, smallpox or plague, either originating in or brought into the zone.

SEPARATION OF THE EPIPHYSIS OF THE SMALL TROCHANTER OF THE FEMUR

TWO NEW INSTANCES OF A RARE LESION

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During the past year I have twice seen separation and dislocation of the epiphysis of the small trochanter of the femur without other bone injury. It is a fair assumption, then, that this injury is not uncommon; if this be so, the injury must at times have escaped attention, for American literature is barren in reported cases, while abroad the literature of the past sixty years has yielded but fifteen, as follows:

REPORTS IN THE LITERATURE

Year	Author	Reference	Age of Patient
1854	Brunelle	Rev. méd.-chir. de Paris, 1854, xvi, 57	19
1879	Julliard	Progrès méd., 1879, vii, 825	82
1904	Bardenheuer	Ueber die Behandlung der Fractures, 1904	15
1908	Picquand and Douai	Bull. et mém. Soc. anat. de Paris, 1908, lxxxiii, 486	87
1909	Pochhammer	Arch. f. klin. Chir., 1909-10, xci, 719	15
1909	Hannemueller	Beitr. z. klin. Chir., 1910, lxx, 905.	15
1909	Hoch	Ztschr. f. Chir., 1908-09, xcvii, 405	17
1909	Chaput	Bull. et mém. Soc. de chir. de Paris, 1909, xxxv, 207	52
1911	Binet and Hamant	Rev. de chir., 1911, xliii, 564	11
1911	Baehr	Deutsch. med. Wchnschr., 1911, xxxvii, 1942	16
1911	Grune	Ztschr. f. orthop. Chir., 1911, xxix, 80	14
1912	Naegeli	Beitr. z. klin. Chir., 1912, lxxvii, 242	14
1912	Peggar	Beitr. z. klin. Chir., 1912, lxxxi, 138	52
1912	Wagner	Deutsch. Ztschr. f. Chir., 1912, cxix, 557	14
1912	Gray	Jour. Roy. Army Med. Corps, London, 1912, xviii, 578	..

All of these cases occurred in men and boys. In adults, four, probably five, were definite fractures rather than separated epiphyses. The more recent diagnoses—and the majority—were made with the Roentgen ray. Yet without this aid the symptoms and signs may be sufficiently definite to warrant a tentative diagnosis. Thus in the second case that came under my observation, the roentgenogram served merely to confirm a diagnosis previously made.

Fracture or separation of the small trochanter complicating other injury has been, of course, frequently observed. Witness Ashhurst:[1]

> Last autumn one of our resident physicians at the Episcopal Hospital asked me whether fractures of the lesser trochanter of the femur were not excessively rare. I replied that isolated fractures of the lesser trochanter might be, as I did not recall having seen any; but that at the time we were speaking there were in Dr. Frazier's wards in the Episcopal Hospital no less than four fractures through the trochanters of the femur, involving separation of the lesser trochanter. . . . I include in the series of cases two patients from Dr. H. C. Deaver's service at the Episcopal Hospital. Thus there are six cases of fractures through the trochanters of the femur in one hospital in a period of six months.

My personal cases may be thus described:

CASE 1.—Feb. 18, 1914, a boy, aged 17, was playing goal in a hockey game. A bump from an opposing player caused his right limb to slip suddenly backward; he lost his balance and fell. His pain was so slight that he finished the game and walked to his room. In the evening there was more definite pain in the region of the small trochanter of the

1. Ashhurst: Ann. Surg., 1913, lviii, 494.

femur, extending into the right groin. Lying on his back with leg extended, he could flex the thigh not more than an inch. Passive flexion caused a sharp pain in the groin; but other movements, either active or passive, were scarcely painful. The boy could abduct the thigh but could not flex and adduct sufficiently to place the leg on the involved side across the leg on the normal side. Rotation at the hip joint was not impaired. With the hip joint held rigid, walking caused little discomfort. There was no eversion of the foot, nor was there ecchymosis or swelling at the site of injury.

Fig. 1.—Right thigh, Case 1, taken Feb. 22, 1914, four days after injury. Separation and upward dislocation of small trochanter. Periosteal attachment between lower end of fragment and upper end of its former base.

A roentgenogram (Fig. 1) showed separation and slight upward dislocation of the small trochanter of the femur without other injury. A plaster spica (applied with the thigh flexed) put an end to the boy's pain. This was removed in two weeks to serve as a model for a leather spica, and a second cast was applied. The leather spica was utilized after the third week, and it was found at this time that the boy could flex his thigh several inches without discomfort. At the beginning of the seventh week the patient was allowed to walk; at the beginning of the eighth week to take off the leather spica at night; at the beginning of the ninth to omit it entirely. Massage was not needed.

CASE 2.—Nov. 10, 1914, a boy, aged 16, running in a football game, wheeled quickly to the right to catch a forward pass. As he did so his left limb lagged behind in extension. In an instant he found himself in a heap on the ground. He had no sharp pain, and after being helped to his feet found that he could walk if he fixed his left hip, but could flex the left thigh only an inch or two. That night he suffered severe though intermittent pain over the left small trochanter and in the left groin. Nevertheless, he hobbled about until the following noon before reporting for treatment. The further history of the case is essentially the same as that of Case 1. The boy, who is still wearing a leather spica during the day, has apparently recovered complete function.

Trauma causing the lesion in question has varied. Thus, in Brunelle's case, the exciting cause was a blow on the foot; in Picquand and Douai's the patient was crushed by an automobile; Gray's patient fell from a bicycle, striking on his left hip. Ordinarily, the separation or fracture has apparently been due to unexpected and violent contraction of the iliopsoas muscle. This may occur while an individual is running (Case 2); it may occur when the thigh slips into hyperextension (Case 1 and Pochhammer) in a sudden effort to reestablish equilibrium and avoid a prospective fall. Or again, we may accept the explanation (Binet and Hamant) that in case the body is semiflexed at the hip joints with the iliopsoas muscle contracted and pulling perpendicularly, a sudden effort to stand upright will put an undue strain on the small trochanter.

In one instance (Pochhammer) the fragment of trochanter was broken into four bits. Otherwise the fragment has been intact but displaced upward 1 cm., 2 cm. or even more (Hannemueller). In two instances the fragment comprised not only the trochanter but also a small portion of the femoral shaft below.

From the reported cases and my own one may gather the following symptoms:

1. Pain. This was slight if the patient remained quiescent. Walking and attempts to flex the thigh intensified the pain. Other movements of the hip joint caused little objection. Pain persisted for several days about the site of injury. It radiated to the groin (Cases 1 and 2), to the hip joint or to the flank (Binet and Hamant). There was tenderness on pressure over the small trochanter.

2. Loss of function. This was either partial or complete. Several of the boys were able to walk, although stiff-hipped and with discomfort, after the accident. Brunelle's patient followed his occupation for a week before resorting to surgical treatment. According to Binet and Hamant, Ludloff's sign is characteristic, that is, a patient can lift his thigh—the rectus femoris coming into play—when lying on his back, but is unable to do so in a sitting position. Wagner and Naegeli have not, however, borne out this statement, while other observers have failed to determine the point. In my cases, each patient could lift the involved extremity (leg extended) an inch or two while lying on his back. Greater flexion than this was impossible. Hoch states that, in his experience, active motion was impossible. Adults showed much greater loss of function, as a rule, than did youths.

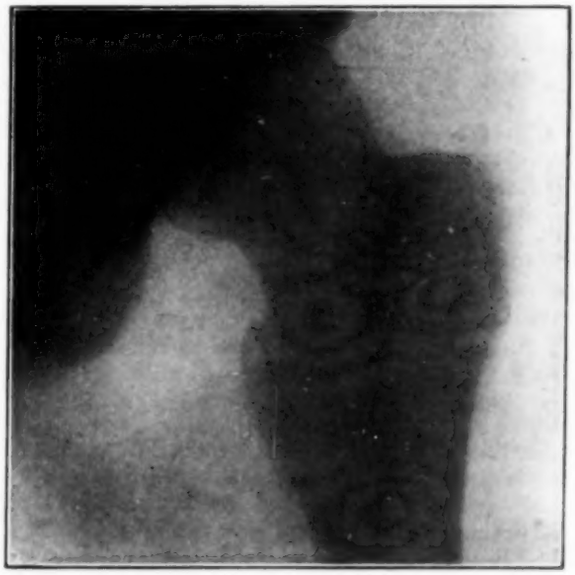

Fig. 2.—Right thigh, Case 1, Jan. 23, 1915. Fragment firmly united with femur above its former site.

3. Deformity. Adults showed, too, greater deformity. Eversion, suggesting fracture of the femoral

neck, was common. In Julliard's case (age 82) this diagnosis was rectified only by necropsy. Picquand and Douai described a similar appearance (age 87). Chaput reported that the thigh was held not only in external rotation, but also in flexion and abduction (age 52). Gray also noted that the leg was strongly everted but could be rotated into normal position. Among juveniles, eversion was not in evidence; on the contrary, there was no deformity.

Fig. 3.—Left thigh, Case 2, taken Nov. 11, 1914, the day after injury. Separation and upward dislocation of small trochanter.

4. Localized swelling and ecchymosis have occurred. In the two old men, necropsy showed extensive extravasation of blood into the muscles. Pochhammer noticed a considerable hematoma. These signs were absent in both of my cases.

Lacking roentgenographic assistance, then, the positive diagnostic evidence in this lesion is:

1. Localized pain and tenderness.
2. Inability to flex the thigh or, if it be present, Ludloff's sign.
3. Localized swelling or ecchymosis in the upper part of Scarpa's triangle.

The lesion acts not unlike a contusion slow in healing, but in a simple contusion one should procure a history of a localized blow, earlier amelioration of pain and tenderness and generalized rather than special loss of function.

One has also, especially in adults, to exclude other bone injuries, for instance:

1. Fracture of the neck of the femur.
2. Fracture of the head of the femur.
3. Fracture of the large trochanter.
4. Separation of the epiphysis of the head of the femur.
5. Separation of the epiphysis of the large trochanter.

And here not only must one consider the positive evidence, but also one must remember, further, that a fracture or separation of the small trochanter shows no crepitus; neither shortening nor lengthening of the thigh (Brunelle found lengthening but this was presumably independent of trochanteric injury); no ascension of the great trochanter; no abnormal mobility, and that, in juveniles, there is no deformity.

Pochhammer notes that a roentgenogram may fail to show this lesion of the small trochanter if it is taken when the thigh is in external rotation and adduction.

In old persons the prognosis may be quite as grave as it is in fracture of the femoral neck. The two oldest patients in this series died. Brunelle's boy died from tetanus (?) following infection of a complicating hematoma. Barring old age and infection, there are good prospects for complete recovery. Case 1 now shows (Fig. 2) bony union between the fragment, still displaced, and its femoral base, and such union presumably occurs whenever the fragment is closely approximated

Complete recovery has been procured in both of my cases by immobilization, with the thigh flexed, as described briefly under Case 1. Operative interference is rarely or never indicated.

TRICHOTILLOMANIA

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The recent article on trichotillomania[1] drew my attention to the fact that I have had an example of this peculiar disorder under my care during the past year. The patient, C. L., American, is a boy, aged 4 years. There are three other children, all apparently normal in every way, and the family history discloses nothing of cutaneous or neurologic interest. The patient was raised on the breast, and is a well-nourished, sturdy little fellow, 3 feet and 4 inches tall, and weighs 40 pounds. Like his brother and sisters, he sucked his fingers up to the time he was 18 or 20 months old. He has never suffered from chorea or spasms of any kind. About one year ago his mother first noticed that he had acquired the habit of jerking hairs out of the left side of his scalp. The operation was performed with either hand, although the left was commonly employed. The habit has gradually grown worse instead of better, although it was slightly mitigated for a time by keeping the hair closely clipped. Arsenic, in the form of liquor potassii arsenitis, has appeared to benefit the condition a little, but it has never been pushed because of the tender age of the patient. I shall adopt the suggestion of shaving the scalp, as I believe that the habit can be overcome by that method.

3022 East Twenty-Third Street.

Loss of hair because of trichotillomania.

1. Sutton, R. L.: Trichotillomania, THE JOURNAL A. M. A., Dec. 12, 1914, p. 2126.

The Human Element.—The human element in the case will always traverse the exactness and precision of pure science, and this factor may never be left out of account. The conception of clinical problems, and our dealings with them, necessitate an empirical element in our work if we be prudent physicians, and a large measure of that element will, as I believe, always remain to claim our careful attention and employment for the best interest of the patient. This matter relates strictly to the art of medicine, and it is our art that is now so much ignored and in danger of being lost. I have often remarked that a great physician is a great artist, and not a savant in the ordinary sense of that term.—Sir Dyce Duckworth, *Lancet*, London, Nov. 28, 1914.

A CASE OF DIAPHRAGMATIC HERNIA DIAGNOSED BY ROENTGEN RAY

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FORT WAYNE, IND.

The patient was brought to me, Nov. 5, 1914, by Dr. E. H. Underwood of Fort Wayne, who furnished the previous and subsequent history.

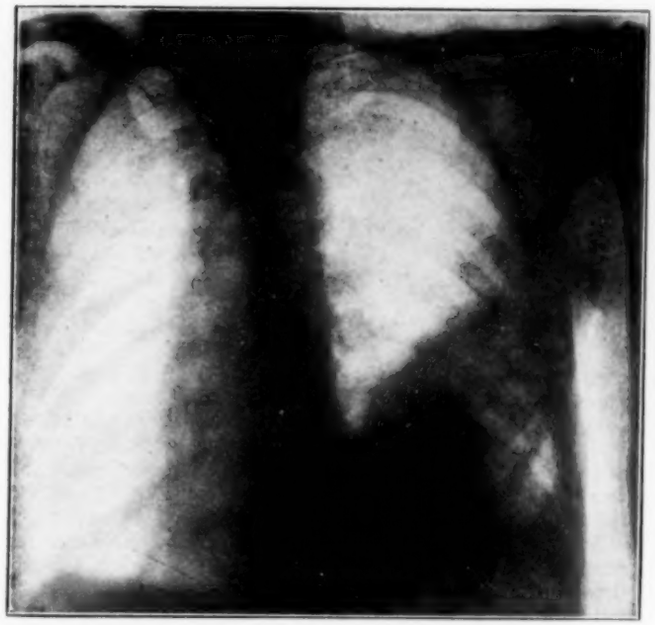


Fig. 1.—Roentgenogram showing stomach in the left chest, old fracture of right clavicle and two fractured ribs on the left side.

Fig. 2.—Lateral view of chest.

History.—J. A. C., man aged 73, American, carpenter, first came to the office Sept. 11, 1914. The family history was negative. The patient had had the diseases of childhood, pneumonia at 18 and typhoid at 24. He fell 40 feet when 33 years of age, falling on his shoulders and fracturing the right clavicle. He was in bed six weeks and disabled from work six months. There was no dyspnea at this time. Since then he has had several falls with slight injuries. Recovery from all these was complete. The present illness began April 26, 1914, when he fell 16 feet from a scaffold. He thinks he fell on the back of the head and shoulders. He was dazed but not rendered unconscious. He immediately said that something was wrong in the abdomen and chest, and he believed he was dying. He suffered greatly from dyspnea, and pain in the abdomen and left thorax. He complained of a crowding sensation about the heart which disturbed the heart action and produced an arrhythmia, palpitation and cough. The symptoms gradually improved for three or four weeks, when he was able to be about, but he could not work because of shortness of breath and weakness. The condition remained about the same until August, when he began to fail. During this time he was subject to attacks of dyspnea and palpitation. The appetite remained good. The patient did not vomit.

Fig. 3.—Stomach in area in which heart should be; fleck of bismuth in small bowel, going through hernial opening.

Physical Examination.—The patient was much emaciated; this condition had developed gradually from the time of injury. He complained of dyspnea and palpitation, which were growing worse and were aggravated by taking food. Pain in the left chest was increased. The appetite was good, but the patient was afraid to take food. He was very constipated. There was much tenderness in the region of the gallbladder and over the epigastrium.

Inspection showed an emphysematous chest. The chest walls were fixed in expansion. The percussion note was hyperresonant over the entire chest. Auscultation showed bronchial breathing and mucous râles over the right chest and upper left chest. There were no distinct sounds over the lower left chest. The heart was displaced three finger-breadths to the right of the sternum. The cough grew worse, with mucopurulent expectoration. Ten days before death, the patient began having attacks of angina pectoris, which recurred from one to four or five times in twenty-four hours. After these attacks began, all food was refused. Because of anginal attacks, the patient was kept narcotized, dying, December 2, from exhaustion.

Roentgenoscopy.—Nov. 5, 1914, he was brought in for a Roentgen examination. The mixture of 3 ounces of barium sulphate and 12 ounces of buttermilk was given, and after a few minutes a large picture of the abdomen was taken to locate the stomach. Only a few flecks of barium were present. Then a roentgenogram of the chest was taken, and the stomach was found in the left chest (Fig. 1). This also showed the old fracture of the right clavicle, which occurred forty years before, and two fractured ribs on the left side. A lateral picture of the chest (Fig. 2) was taken to determine the height of the stomach. A marker was put on the left nipple with the patient lying on his side. This shows the stomach to be lying about 4 inches above the left nipple. Figure 3 shows the stomach very plainly in the area where the heart should be, and a fleck of bismuth in the small bowel, going through the hernial opening. The percussion note over the lower left chest after the barium meal was dull as compared to the same note before the meal.

Necropsy.—The chest was rather barrel shaped and symmetrical. Opening of the chest revealed that the heart was displaced to the right, so that almost the entire organ was in the right chest cavity. In the left chest cavity was the enlarged stomach including the pylorus, which filled the upper two-thirds of the left pleural cavity, with the exception of a small space occupied by the collapsed lung. Beneath the stomach were about 15 feet of the small intestine, and below that were the spleen and a part of the splenic flexure of the colon.

Further examination revealed the opening through the diaphragm between the left lateral muscle and about 1 inch to the left of the esophageal opening. The stomach adhered to the upper third of the chest cavity with numerous adhesions. The small bowels were very red, and here and there were flecks of plastic exudate. The spleen was very dark, soft, a little enlarged and covered with a plastic exudate. The large bowel was attached to the spleen with the exudate.

Pathologic Findings.—1. Beginning gangrenous splenitis with plastic exudate over spleen, small and large bowel and parietal pleura.

2. Acute dilatation of the stomach.
3. Compression of the left lung.
4. Diaphragmatic hernia through the left lateral muscle.

A CASE OF FIBROMA OF THE PAROTID

F. C. YEN, M.D., D.T.M., CHANGSHA, CHINA

A Chinese man, aged 65, was admitted to the surgical service, Nov. 19, 1914, presenting a large tumor of the left parotid region. The patient was a farmer with no significant history. The tumor was of three years' growth. It had at no time been painful, but was a serious mechanical impediment to speech and deglutition. The patient was under average stature, and not of robust physique, but otherwise was in good health.

Fibroma of parotid

On examination the tumor appeared nodular, with occasional areas of almost bony hardness, and others of apparently cystic degeneration. It seemed intimately connected with the parotid gland, was not tender or painful, and gave rise to no pressure symptoms except the mechanical impediments noted. Its size and location are shown in the illustration. The skin was movable over the mass except in one spot on the lower posterior aspect, where it was adherent under an ulcer the size of a half dollar. A provisional diagnosis was made of a mixed parotid tumor with secondary degeneration.

At operation the mass was found to involve a considerable portion of the parotid gland from which it had grown. A long dissection was necessary to free the tumor from the facial nerve and artery. It was necessary to sacrifice all but the superior radicals of the facial nerve. The skin was united over the tumor area and healed by first intention, leaving some edema in the submaxillary region which cleared up in a few weeks, and a partial facial paralysis, which persisted.

Microscopic examination of the excised tumor showed a fibroma apparently originating in the parotid gland. Secondary cystic degeneration had occurred in the acini blocked off by the fibrosis.

Yale Hospital.

AVULSION OF THE SCALP

T. W. NUZUM, M.D., JANESVILLE, WIS.

Mrs. B. C., aged 28, farmer's wife, of German parentage, mother of two children, one of whom is living, was in a milk house, Sept. 1, 1914, where a milk separator operated by a gasoline engine was running, when a set screw in a shaft caught in her hair and tore off her entire scalp. The line of cleavage was the hair line on the back of the neck, forward close to the left ear and down the left cheek, leaving a flap 3 inches wide hanging over the left side of the face, thence over the supra-orbital ridge, taking the entire eyebrow, and extending down to the tip of the nose, taking the skin from the top of the nose. The right ear was torn off and hanging. The right eyebrow was still attached by a small pedicle which was replaced, but sloughed, except for a small bit near the outer canthus of the eyes. The temporal and supra-orbital muscles were mostly torn away, and on three spots, each an inch wide and from 1 to 3 inches long, the pericranium was torn away, leaving the naked bone exposed.

Fig. 1.—Two weeks after application of grafts.

The patient did not faint, but ran into the house and looked into the glass. Seeing the "bone-white surface," she grabbed a dish cloth, which was in reach, and covered her head. She was not conscious of suffering extreme pain for a time, and the bleeding was insignificant for the amount of trauma.

A physician was summoned from the city, 7 miles distant, who applied sterile dressings and gave the patient a hypodermic of morphin, placed her in an automobile and drove 28 miles to the hospital. She sat up all the way and walked in on reaching the hospital. The husband had the severed scalp brought along, and desired that it should be replaced to see if it would not live. Accordingly, it was carefully sutured in place, the hanging ear was replaced, and the flap of cheek sutured back; the skin was drawn up from each side of the nose and met, and was sutured in the midline. On the following morning the scalp was turning green and was removed, and hot boric alcohol dressings applied and the dressings kept continuously moistened. The wound was dressed daily until healthy granulations sprang up over all the bare surface, except where the bone was denuded of its pericranium. These patches looked gray and dead for a time. Later small red specks appeared scattered over the gray surface of denuded bone which spread, until at the end of

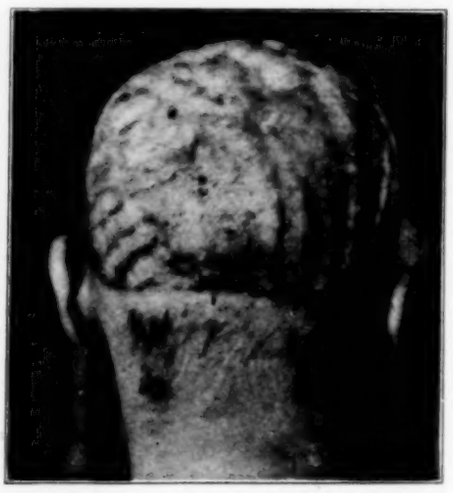


Fig. 2.—Two months from the date of injury.

six weeks the surface was quite well covered with granulations.

September 15 we removed large Tiersch grafts from one thigh and covered the forehead and the right side of the head and dressed these with rubber tissue strips and dry gauze which were left on for one week. I carried one graft across an area of denuded bone to see if they would take on such a surface, as is asserted by some writers. The graft took finely at each end where it rested on granulation tissue, but died where it was in contact with denuded bone. The grafts took well, but the patient rolled her head on the pillow and crumpled some of the grafts on the side of the head, thus losing some of the surface that was covered at the first sitting; but the grafts lived.

September 28, we grafted the remainder of the head, dressed it as before, and kept the patient sitting up for fourteen days to prevent rubbing off the grafts. She sat in a low-backed chair, and when she slept she leaned her head on her arm, which rested on a table in front of her. As the grafts on the forehead were well taken, at the end of five days the dressings were changed and redressed with rubber strips, and normal salt solution was used to keep the dressings moist for five days more, after which sterile petrolatum was spread on gauze and applied to the grafted surface.

The latter dressing seemed ideal, as the grafts flourished and the surface cleared up with great rapidity, so that at the end of two months from the day of the injury, the patient returned home with a new scalp and in fair health.

Figure 1 was taken two weeks after the grafts were applied and shows some denuded spots still bare of grafts. Figure 2 was taken on the day the patient left for her home, just two months from the day of her injury.

EXTENSIVE DESTRUCTION OF VULVA AND ADJACENT TISSUES PROBABLY DUE TO PNEUMOCOCCIC INFECTION

GUTHBERT POWELL, M.D., DENVER
Fellow of the American College of Surgeons

On October 5, last, a white woman, aged 48, was admitted to my service at the Denver City and County Hospital. Her history, briefly, is as follows:

Patient was married at 16 and has been a widow for twenty-seven years. She has never been pregnant. Menstruation every thirty days, a normal four-day flow. Her past health has been good; has had no illness of any kind during the past fifteen years. Family history not noteworthy.

Her present trouble began two weeks before admission to the hospital, when a vulva pad worn during her menstrual flow chafed and irritated the parts. A week ago she procured some medicine from a physician to be used locally as a wash. She is positive that the wash did not smell of carbolic acid. Two days before admission to the hospital, the labia become greatly swollen, painful and dark colored.

The patient on admission was thin, pale and emaciated. Temperature 100.2, pulse about 110, bowels constipated, appetite and digestion good. Urine contained a trace of albumin, a few hyaline and granular casts, some pus cells; sugar was absent. A Wassermann test was negative. There was no glandular involvement.

External examination of the genitals revealed an extensive foul smelling ulceration, partly covered with a black necrotic mass. The area involved extended from above the pubic promontory to below the anus, and, laterally, well outside of the labia majora on to the inner surface of the thighs.

Under ether anesthesia, an examination of the pelvic organs was made *per vaginam*. The bladder was found greatly distended, rising as high as the umbilicus and was emptied by catheter. The uterus, tubes and ovaries were apparently normal, as was also the vagina.

The necrotic mass was snipped off with scissors, showing an extensive destruction of the underlying fat and connective tissue, leaving the perineal muscles and lower 2 inches of rectum exposed as shown in the illustration.

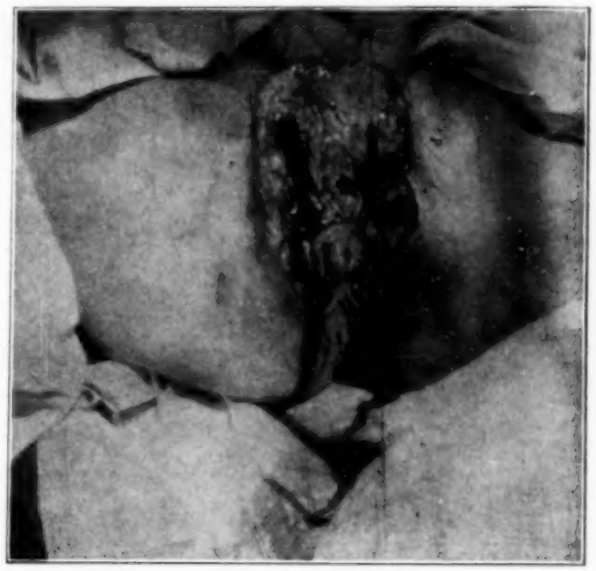
Pure carbolic acid was swabbed over the raw surfaces followed immediately by alcohol, and a dusting powder of equal parts iodoform and boric acid was applied.

The laboratory report of cultures made from the necrotic mass and smears taken from the raw surface showed large numbers of pneumococci present, with a few streptococci. No spirilla were demonstrated.

The subsequent treatment of the case consisted of cleansing once daily, with a weak solution of hydrogen peroxid and the application of the iodoform and boric acid powder. The patient was kept in bed. The temperature, after the removal of the slough, dropped to normal, where it remained during convalescence. It was necessary to catheterize the patient every eight hours until October 16, after which date urine was voided normally.

Healing progressed steadily; at the end of the fourth week, almost the whole of the ulcerated area had filled in and healed over. There was a surprisingly small amount of scar tissue visible, the normal skin seemingly having covered the greater part of the denuded area, growing in from the edges.

The patient left the hospital November 10, the thirty-sixth day after her admission, entirely healed with the exception of a very narrow margin of granulation tissue about the vaginal opening. The parts presented a remarkably smooth and normal appearance in spite of the extensive destruction of tissue which had taken place. Her general condition also was greatly improved; weight had increased and color was good. Unfortunately she left the hospital before a photograph showing the healing of the parts was taken.



Ulcerated area showing extensive destruction of superficial tissues with exposure of perineal muscles and lower two inches of rectum.

Dr. A. J. Markley of Denver has a photograph of a patient with identically the same lesions as shown in the illustration. This patient was seen by him in February, 1912, and his account of her condition coincides exactly with my case. Bacteriologic examinations of Dr. Markley's patient showed a pure culture of pneumococcus. No other growth was found; she made a complete recovery in about thirty days.

There are several interesting points to be noted in this case.

1. Its rarity; a brief search of the literature fails to find mention of a similar case.
2. The bacteriologic findings; pneumococci in large numbers, with a comparative absence of other organisms.
3. The rapidity of the destructive process.
4. The readiness with which healing took place, and the remarkably good cosmetic appearance, in spite of the extensive tissue destruction.

432 Metropolitan Building.

TRAUMATIC INTERRUPTION OF SCIATIC NERVES

ANDREW H. WOODS, M.D., CANTON, CHINA
Neurologist, Canton Hospital

The patient whose photograph is shown herewith was a healthy youth (Canton Hospital No. 297, 1914) who fell from a tree a year before admission, landing in a half-sitting, half-lying posture, wounding the tissues overlying the ischial tuberosities. He was unable to walk for several months on account of weakness in the lower limbs. The large sloughing wounds healed very slowly; they would crust over and then slough away at the margins. On admission, unhealthy skin had formed over the ulcers, with superimposed crusts still present.

The patient hobbled into the hospital. Examination showed weakness of calves and hamstring muscles, which were fatty and bulged on attempted contraction. Trophic disturbance was noted in elephantine thickening of skin around the wounds, between the buttocks, in the popliteal spaces and behind the heels, extending up the tendons of Achilles. There was pigment deposit in the thickened skin, in places dark brown to black. Sweating was present on the external aspects of the heels and feet. These changes all occurred after the injury. Analgesia and anesthesia were well defined in the areas shown in the illustration: the back of the scrotum, the perineum, the intergluteal cleft, the inner and lower two-thirds of the gluteal areas down the backs of the thighs to

Scars of wounds. The anesthetic areas are marked on the skin as tested.

the midlevel of the calves, as shown. On the feet there were analgesia and anesthesia of the outer aspect of the heels, and hypesthesia of the outer thirds of the soles and the tips of the toes. On the right leg a strip running from the midcalf down and out to the external malleolus connected the upper and lower areas. There was no sphincter involvement and there is no pain now.

The wounds over the tuberosities, from their appearance and history, must have healed under trophic disadvantages. The skin in the anesthetic areas has had bad trophic innervation, resulting in pigmentation and thickening. The motor areas involved are those supplied by the sciatic nerve; the sensory involvement shows trouble chiefly in the lesser sciatic (posterior femoral cutaneous), including its long pudendal and gluteal, that is, clunial branches; the external saphenous (sural), throughout its whole extent in the right leg, but only in its calcaneal and lateral dorsal cutaneous branches in the left. The injury, therefore, affected both bundles of the great sciatic and the whole of the lesser sciatic from the level of the tuberosities of the ischial bones. The motor damage is rapidly healing. The sensory damage affects the lesser sciatic and the sural especially, but is improving. No operation was advised, owing to the length of time that intervened, the amount of scar tissue and the evidence of spontaneous regeneration of the axons.

Canton Christian College.

Special Article

PRACTICAL PHARMACOLOGY*

(*Continued from page 1158*)

XIV

ANTISEPTICS AND DISINFECTANTS

GENERAL DISINFECTANTS

Every one knows that sunlight and heat destroy all bacteria, but the limitations of these agents are not always appreciated. Direct bright sunlight shining immediately on bacteria destroys them rapidly, but when these are protected by even minute masses of dried organic matter, they may escape destruction; therefore care should be exercised when sunlight is employed as a disinfectant to see that no small masses are present with bacteria in them.

Flat surfaces of wood and cloth may be disinfected readily by exposure to direct sunlight.

Heat of sufficient intensity destroys all organisms, but small masses of organic matter may protect bacteria to such an extent that even boiling for a short time will fail to destroy the organisms thus protected. Tetanus spores are not destroyed immediately in boiling water, even when they are not protected.

Few organisms, even spores, resist steam under pressure for more than a few minutes. Boiling water destroys nearly all organisms within half an hour. Even moderately hot water injures the bacillus of typhoid fever, and it is destroyed almost instantly in boiling water, provided that it is not protected at such times by masses of feces or other matter. Care should be exercised to see that such masses have been dissolved or disintegrated completely before the disinfection is begun, or, at any rate, before it is completed.

HALOGENS AND THEIR COMBINATIONS

All of the halogens are actively disinfectant, but fluorin and bromin are too corrosive for general use. Chlorin is commonly used in the form of hypochlorites which yield chlorin. Iodin is used in the form of a solution or tincture, or in combination with an organic substance. Tincture of iodin is irritant, but is often applied locally for the disinfection of the skin. It is said that the skin should be thoroughly dried before the iodin is applied. Iodin is very commonly used to paint the skin at the site of a hypodermic injection, or small incision.

While there is no question of the disinfectant action of iodin in vitro, there is a good deal of uncertainty concerning the degree of its disinfectant activity after it comes in contact with the tissues with which it combines, for it then attacks bacteria less energetically.

Iodin is also destructive to larger parasites which infest the skin.

Among the combinations of iodin with organic substances are iodoform, iodothymol, or thymol iodid, which has been mentioned.

Iodoform is not actively disinfectant, but when applied to moist wounds, it decomposes slowly with the liberation of active iodin, partly free, and partly in unknown combinations. It is sometimes absorbed from open wounds, probably in the form of one of these unknown compounds, and gives rise to character-

* This is the fourteenth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

istic symptoms of poisoning. The first symptoms consist in disturbances of the central nervous system; these are followed only after several days by excitement, restlessness, anesthesia and sometimes by unconsciousness. Stimulation may alternate with depression, or there may be pure narcosis.

These symptoms do not occur unless iodoform is used over large surfaces or for a considerable period of time. It is not necessary to discuss the actions of iodoform after internal administration, because there is no occasion to administer it internally.

Iodoform is applied in the form of an emulsion or as a dusting powder, especially in the surgical treatment of tuberculosis. It may be used as a suppository for the relief of painful hemorrhoids.

Chlorid of lime, so-called, which is a mixture containing hypochlorites mainly, which readily yield free chlorin, is one of the most commonly used of household disinfectants and bleaching agents. It is corrosive, attacking metals and destroying fabrics.

Chlorin is available in the form of other hypochlorites, which may be decomposed to yield free chlorin.

Formaldehyd

Formic aldehyd, or formaldehyd, is a very active antiseptic, but its germicidal powers vary widely with the organism and the conditions under which it is employed. It has been found that tubercle bacilli require forty-five minutes for their destruction in a 5 per cent. solution; with a higher temperature the solution is more active. The gaseous formaldehyd is not to be depended on as a germicide when the temperature is lower than 16 C. (60.8 F.).

Tightly closed rooms may be disinfected by wetting sheets with 150 c.c. (5 fluidounces) of the official formaldehyd solution for each thousand cubic feet of space, and allowing this to evaporate. The room is kept closed for twenty-four hours. The formaldehyd may be sprayed through a keyhole into the closed room, but this is inconvenient. Candles are now sold for fumigating rooms with formaldehyd, this being the most convenient method available. Rooms may be fumigated in the way indicated, but clothing and other fabrics must be hung up so that the gas will come in contact with every portion. The room should be heated if the fumigation is carried out in winter, and the atmosphere should be kept moist by the evaporation of water. The gas does not injure fabrics.

Formaldehyd has a wide field of usefulness as a disinfectant, and the solution may be used for fabrics which may be wetted by it without injury. The irritant vapor of formaldehyd persists in the atmosphere of a room for some time after the doors and windows are opened; this disadvantage may be overcome in part by spraying a little ammonia into the atmosphere, or more conveniently, by exposing it freely on plates.

Among the cheaper disinfectants used in cesspools, drains and other large spaces are copperas, or ferrous sulphate, sulphur as brimstone or roll sulphur, which is burned in an iron pot, or other suitable container; and lime, which is used either as milk of lime to dissolve organic matter and destroy the bacteria, or as a whitewash for application to flat surfaces.

Halsey states that sulphurous acid affords the only practical means of destroying the mosquito that carries the infection of yellow fever, and that it is commonly used in living-rooms. Burning sulphur is converted into the dioxid, and this into sulphurous acid when it comes in contact with moisture.

Copperas is an excellent deodorant for urinals, a handful of the crystals being thrown into the urinal and allowed to dissolve slowly. The fumes of burning sulphur, or sulphur dioxid, are extremely irritating and poisonous, and they corrode metals and fabrics; hence disinfection by this means is limited to large rooms and spaces where the corrosive action will not cause damage.

Polished metal fixtures and many other articles and substances may be protected against sulphurous acid and other corrosive fumes by coating them with paraffin.

The paraffin is melted, and while quite hot it is applied with an ordinary paint-brush. It solidifies instantly, forming a thin coating which may be removed later without difficulty.

Potassium permanganate in solution decomposes all organic matter with which it is brought in contact; it is useful as a deodorant, but not especially as a disinfectant, since it does not attack bacteria more readily than other organic matter. The solution stains the hands, and is disagreeable to use.

Mercuric chlorid is one of the most powerful disinfectants which we possess, but its action is greatly interfered with by organic matter. It attacks metals, and hence it cannot be used for the sterilization of surgical instruments. It may be used for sterilizing the water which has been used to bathe a patient suffering from an infectious disease, and to sterilize the urine, or even the feces, provided these are nearly liquid and small masses are disintegrated, but it is not so useful for the latter purpose as a strong mixture of lime and water. A solution containing one part of mercuric chlorid to ten thousand parts of water is rapidly fatal to many spores and all non-spore forms of bacteria. The intensity of the action is of course increased with higher temperatures.

The extraordinary toxicity of mercuric chlorid is one of the greatest disadvantages in its use.

Hydrogen Peroxid

The official solution of hydrogen dioxid has been freely used and widely abused as a germicide and disinfectant. In the presence of pus or other organic matter it is decomposed with brisk evolution of oxygen. This effervescence is of advantage in its use as a detergent either in connection with open wounds or ulcers, exposed mucous surfaces or as a wash for the mouth and teeth. It is obviously unsuited for injection, into sinuses or subcutaneously, as the gas resulting from its decomposition tends to destroy tissues and spread infection. Hydrogen peroxid applied to bleeding wounds acts as a styptic by coagulating albumin, and has come to be a popular household remedy.

Many of the widely advertised antiseptics are wholly useless as disinfectants, and no one should depend on the directions which accompany these for preventing the spread of contagious diseases. The so-called chlorids, such as Platt's, may have some value as deodorants, but they cannot be used for disinfecting rooms and fabrics.

The difficulty of destroying micro-organisms in the body tissues is shown by the results obtained by Bechhold and Ehrlich in their experiments with a large number of agents, including numerous halogen combinations with benzene derivatives. Some of these compounds were extraordinarily active against certain organisms in the test-tube, but they were uniformly ineffective in much greater concentration when used

in the body. The fact cannot be reiterated too emphatically that test-tube demonstrations of disinfectants and antiseptics, however brilliant, afford no index of therapeutic value when the agents are used internally against infection in man.*

Volatile Oils

Spices and related aromatic substances have been used as preservatives from time immemorial, but it is only recently that any experiments have been made to determine the relative antiseptic and disinfectant activity of essential oils and their constituents.

Martindale[6] found that a few of the essential oils compare well with thymol and other phenols in antiseptic activity, though most of them are much weaker.

Oil of turpentine has had an especial vogue as an antiseptic in surgery, but most of the volatile oils have come to occupy a subordinate place among the disinfectants and antiseptics, except for a few special indications, such as that of sandalwood oil in gonorrhea.

Boric Acid and Borax

Boric acid is weakly antiseptic, but hardly at all destructive to the more common bacteria, though it destroys certain molds readily and it is especially useful for the destruction of *Oidium albicans*, the parasite which produces the condition known as thrush.

It is soothing when applied to inflamed mucous membranes in the form of solution or dusting-powder, but the continued use of even small amounts internally gives rise to gastro-intestinal irritation.

Daily doses of as much as 1 gm. (15 grains) increase the combustion of fats and interfere with their utilization as food, and loss of body weight has been observed after the use of boric acid for a few days.

Borax, or sodium borate, is even less actively antiseptic than boric acid; hence such large amounts are required when it is used as a food preservative that they are almost certain to cause some disturbance if taken continuously in the more commonly used foods, such as milk and butter, especially when the elimination—slow at all times—is interfered with as in nephritis, leading to accumulation of the poison in the body.

Even moderate amounts may induce nephritis, thus setting up a vicious circle of slow elimination and increasing nephritis. Very large doses (such, however, as would not be taken in the form of food preservative) cause gastro-enteritis, disturbances of vision, fatty degeneration of various organs and collapse.

Borax interferes with the coagulation of casein, thereby retarding its digestion; hence its use as a preservative of milk is to be especially condemned.

It is sometimes urged in favor of the use of borax as a food preservative that fish and other perishable foods decompose more readily without its use and give rise to ptomain poisoning. This, though undesirable, does not justify the use of a substance which is certain to cause injury at times. The only proper way to guard against ptomain poisoning is to avoid the use of spoiled food.

Boric acid is commonly used in from 2 to 4 per cent. solution for washing the bladder in cystitis, as a wash in conjunctivitis and in catarrhal conditions of other mucous membranes. It was formerly used freely for washing the rectum and other organs, and large amounts were frequently left in the organ to act as an antiseptic; but severe, and even fatal, poisoning has resulted from this practice in a number of cases.

Boric acid is frequently used in a combination with starch, talcum or other diluent, as a dusting-powder on inflamed surfaces.

Solution of borax is used as a mild antiseptic and astringent eye-wash, and as a gargle and mouth-wash. It may be prescribed somewhat as follows as an eye-wash:

		gm. or c.c.	
℞	Sodii boratis	0.5	gr. viii
	Aquae camphorae	10.0	f℥ iss
	Aquae q. s. ad.....	30.0	f℥ i

M.

A stronger solution may be used as a gargle, or as a wash in pruritus, in which case a small amount of glycerin may be added.

Boric acid has been used internally in cystitis, but with the introduction of better urinary antiseptics, such as hexamethylenamin, its use in that way has been discontinued. There are no clear indications for the internal administration of either boric acid or borax.

(To be continued)

* Owing to lack of space the materia medica of this group is omitted. It will appear when this series is published in book form.

6. Martindale: Perf. Ess. Oil Rec., 1910, i, 266.

Therapeutics

PREVENTION IS GREATER THAN CURE*

(Continued from page 1161)

XXVI

Acute Anterior Poliomyelitis (Infantile Paralysis)

It was not definitely shown, until 1909, that this disease belonged to the infections and was contagious, although it had been long suspected. More or less isolated instances and some slight group attacks had occurred in America for many years, but we have had epidemics only since 1907, caused probably by importations of the germ from Europe, where it has been long endemic. In 1909, Landsteiner and Popper reported that they had caused infantile paralysis in monkeys by inoculating them with a spinal cord emulsion obtained from a child who died from this disease. Noguchi and Flexner later reported that they had been able to cultivate a causative organism of this disease. Recently, Flexner and his co-workers[1] have shown that the contagium is contained in the secretions of the nose, and that undoubtedly there are carriers of this disease. It seems to be demonstrated that the infection or poison reaches the nervous system through the lymph, but probably reaches its point of activity, namely, the spinal cord, by means of the cerebrospinal fluid. In previous experiments Flexner and Amoss[2] have shown that in all probability infection does not reach the individual from the bites of insects, as they were unable to infect monkeys by directly introducing the virus into the blood. This does not preclude the possibility of domestic animals like cats and dogs carrying the contagium and caus-

* This article completes the series on "Prevention is Greater Than Cure." It will be published in book form, entitled "The Prevention and Treatment of Infections," and will be ready about May 1, 1915, price seventy-five cents.

1. Flexner, Simon, and Amoss, Harold L.: Localization of the Virus and Pathogenesis of Epidemic Poliomyelitis, Jour. Exper. Med., Sept. 1, 1914, p. 249; abstr., The Journal A. M. A., Sept. 26, 1914, p. 1136.

2. Flexner, S., and Amoss, H. L.: Penetration of Virus of Poliomyelitis from Blood into Cerebrospinal Fluid, Jour. Exper. Med., April, 1914, p. 411; abstr., The Journal A. M. A., April 25, 1914, p. 1360.

ing infection by way of the nostrils and lymph channels. It has not been shown that flies transmit the contagium, nor that the association with stables has increased the liability of infection, as has been suggested. It does not seem frequent that more than one person in the same household is affected, although such cases occur. However, in epidemics the majority of patients are likely to come from the same general region.

Fraser[3] of New York reports his observations on ninety cases of epidemic poliomyelitis. He found that the age varied from 9 months to 14 years. The majority of cases, especially when it is sporadic, has always occurred in young children under 5 years of age. The death rate is generally low, varying from 4 to 16 per cent., but the paralyses resulting are constant and frequent.

A review of the etiology, bacteriology and pathology of this disease is given by Sever[4] of Boston. Flexner and Lewis' splendid work on this subject is reported in various numbers of THE JOURNAL.[5] They state that the infecting agent in this disease belongs to the class of minute filterable viruses which cannot be demonstrated with certainty by means of the microscope. They also showed that spinal fluid withdrawn on the third day of the infection, before the appearance of paralysis, contains the virus which will cause infections of monkeys. Flexner, Noguchi and Amoss[6] have recently again shown that the minute micro-organism isolated from poliomyelitic tissue is probably an etiologic factor, if not the cause, of epidemic poliomyelitis. Flexner and Lewis[7] also showed that the disease can be transmitted from monkey to monkey. They further showed that the germ or virus resists freezing, and therefore the disease is not stopped by cold weather. They also believe that one attack confers immunity.

Lucas[8] found that monkeys after inoculation showed a lymphocytosis during the acute stages, but a marked and constant leukopenia. The blood at this time also showed an eosinophilia. This disturbance in the white blood count disappeared when the acute stage was over.

PREVENTION

It is quite probable that the so-called "distemper" which at times attacks dogs and may attack horses, is really caused by this same infection. Hence, a dog affected with distemper should be isolated, and no child should be allowed to associate with it. While it has not been shown that flies will carry this disease, in all probability they may transmit the infection by their feet. Consequently, flies should be excluded by proper screens, if possible, from any animal that suffers from distemper, and certainly should be prevented from reaching an individual sick with poliomyelitis.

As early as Feb. 12, 1910, Flexner and Lewis[9] showed that this disease was contagious by means of the secretions of the mucous membrane of the nose especially, and also of the throat, and therefore that every patient should be isolated, and that the disease should be made reportable to the boards of health.

The nurse and the family should understand that the same care must be exercised in destroying the contagium and preventing the contamination of articles and substances by the secretions of the nose and throat of a poliomyelitis patient as is so well understood must be taken in diphtheria.

As soon as a case is reported to the board of health, the school board should be informed (as such cases are frequently in children too young to go to school) that they may send home from school the other children of the family, and if there is an epidemic, perhaps the other children of that tenement. The incubation period is said to vary, and may be as long as ten days, but to be safe from causing infection in others, such children should remain out of school for two weeks.

EARLY SYMPTOMS

Although a patient who is old enough may complain of headache and pains, especially in the epidemic form of the disease, still, in this as well as in the sporadic form, the onset may be so rapid that a child well the night before may be found with high fever and even with paralysis in the morning. Pain is referred generally to the muscles of the back and legs, and later to the muscles of the arms. The temperature in serious cases may be high, but the ordinary range of rectal temperature was found by Fraser to be from 101 to 103. The pulse-rate is high, and is generally over 120. While pain may keep the little patient awake, and there may be a great amount of irritability and restlessness, drowsiness and heaviness was noted by Fraser in half of his cases, although there were often twitchings and jerkings during sleep. In two-thirds of his cases he found stiffness of the neck and back, which is so characteristic of cerebrospinal meningitis. The greatest tenderness is found generally in the extremities. Although this might last but one or two days, it sometimes persists for three or four weeks. The tendon reflexes are found generally absent.

Although, as just stated, paralysis may occur almost coincident with the illness in sporadic cases, in epidemic cases paralysis seems to develop most frequently on the third or fourth day. The acute illness lasts from one week to ten days. A large number of Fraser's cases showed some slight facial paralysis. If the respiratory muscles were affected, the prognosis was dire. There may be paralytic interference with urination, and defecation may be difficult from inability of the abdominal muscles to act.

It should be remembered that many abortive forms of this disease probably occur without any paralysis, and many times without a diagnosis, and such cases may doubtless spread infection. Koplik,[10] in reviewing an epidemic of 1,200 cases, states that many atypical forms occur.

As to the extremities, one or both arms may be paralyzed, or one arm and one leg, or both legs, or there may be crossed arm and leg paralysis. The arm

3. Fraser: Am. Jour. Med. Sc., July, 1914, p. 1.
4. Sever: Interstate Med. Jour., 1914, p. 705.
5. Flexner, Simon, and Lewis, Paul A.: The Transmission of Acute Poliomyelitis to Monkeys, THE JOURNAL A. M. A., Nov. 13, 1909, p. 1639; The Nature of the Virus of Epidemic Poliomyelitis, ibid., Dec. 18, 1909, p. 2095; Experimental Epidemic Poliomyelitis in Monkeys, ibid., April 2, 1910, p. 1140; Experimental Poliomyelitis in Monkeys, ibid., May 28, 1910, p. 1780.
6. Flexner, Simon; Noguchi, Hideyo, and Amoss, Harold L.: Concerning Survival and Virulence of the Microorganism Cultivated from Poliomyelitis Tissues, Jour. Exper. Med., January, 1915, p. 91.
7. Flexner, Simon, and Lewis, Paul A.: Epidemic Poliomyelitis in Monkeys, The Activity of the Virus, THE JOURNAL A. M. A., Jan. 1, 1910, p. 45.
8. Lucas: Tr. Mass. Med. Soc., June, 1910; the subject is also discussed by Gay, Frederick P., and Lucas, William P.: Anterior Poliomyelitis. Methods of Diagnosis from Spinal Fluid and Blood from Monkeys and in Human Beings, Arch. Int. Med., September, 1910, p. 330.
9. Flexner, Simon, and Lewis, Paul A.: Epidemic Poliomyelitis in Monkeys. A Mode of Spontaneous Infection, THE JOURNAL A. M. A., Feb. 12, 1910, p. 535.
10. Koplik, H.: An Epidemic of Acute Poliomyelitis, Arch. Pediat., May, 1909, p. 321.

paralysis is not often complete, and the recovery is more rapid. Complete loss of response to faradism means a bad prognosis as to recovery, and atrophy will rapidly occur. If response to faradism is not completely lost, the outlook, with proper care and treatment, is good. The rapidity of recovery from paralysis, and the number that completely recover vary with the different epidemics; but the number that completely recover is lamentably small. More scientific treatment by nerve and orthopedic experts will doubtless make this percentage of complete recoveries much greater.

TREATMENT

A. The Acute Stage.—The same care in isolation, and of the secretions of the nose and throat, to prevent possible infection of others or contamination of articles, should be carried out as has been described for the other infectious diseases. Flies and all domestic animals must positively be excluded from the sickroom. As soon as the diagnosis is positive, the disease should be reported to the board of health, whether or not it is a reportable disease in the community.

Flexner[11] has shown that bedbugs may become infected with this disease. Whether or not they can transmit the disease to a human being by their bites has not been shown. Mosquitoes and lice have not yet been shown to be guilty of carrying the infection, but they, as well as bedbugs and fleas, are not needed in the treatment of this disease.

As Flexner states that the virus is eliminated by the intestines as well as by the nose and throat, all movements of the bowels during the course of the disease, and perhaps for some little time after the acute stage is over, should be as thoroughly disinfected as they are in typhoid fever. Lucas and Osgood[12] found the virus in the nasal secretions of a human being four months after the acute stage of an attack of poliomyelitis. They also found the virus in the nasopharynx of persons who were in attendance on a patient ill with the disease, and in the nasopharynx of a patient who had had the disease 204 days after the acute infection. Kling,[13] however, thinks that the virus soon loses its virulence, and that quarantine need not be continued for more than two weeks. It cannot yet be decided just how long quarantine should be continued, but two weeks should be the under limit, and better, three weeks. That more of the attendants or associates of a patient sick with poliomyelitis do not contract the disease may be because they are insusceptible, or they may have become immune from some previous abortive attack.

There has not yet been produced an antiserum, although it is most sincerely hoped that Flexner and his co-workers will be able to add such a serum to the list of their splendid achievements. With our better knowledge of the action of hexamethylenamin, we cannot expect germicidal activity in the cerebrospinal fluid, which is alkaline. It has been shown that this drug has no germicidal activities, except in an acid medium, and, therefore, it is of special value only in infections of the pelvis of the kidney, ureters, bladder and urethra, and then only when the urine is acid. Hence, when the disease has started, there is no known medical method of aborting it, although mild infections may abort without paralysis.

The treatment in this stage of the disease is to relieve cerebral and spinal congestion and remove all possible toxins that may be absorbed from the intestinal canal by free but gentle catharsis. Calomel, in one sufficient dose, associated with cascara, aloin or rhubarb, as deemed advisable, is always a good method of treatment. Castor oil is another, or at times a quickly acting saline cathartic may be advisable. Subsequently the bowels should be moved as frequently as the diet and the condition of the intestines seem to require. A child that is not taking much food for the first two or three days after the first cleaning out of the intestines need not necessarily be bothered with a laxative every day during this first stage of the disease. As soon as paralysis begins, it may be difficult to cause the bowels to move, and a simple glycerin suppository or a small enema may be needed.

The child must not be allowed to forget to urinate, as some loss of normal bladder irritability may allow urine to be retained and distention of the bladder to occur. Therefore, the child should be encouraged to urinate at about four-hour intervals. Of course, if the urine cannot be passed, it must be drawn.

Generally the fever is not high. If it is high, two or three small doses of acetanilid may be administered; or sponging the body with warm water is advisable. General cold sponging or general cold applications are inadvisable, as tending to cause increased congestion of the central nervous system. The value of an ice cap as a reducer of temperature is doubtful, and it is likely to cause the child to become more restless. The value of a spinal ice bag is also doubtful, as many times these cold applications cause an increase of pain.

Pain must be stopped in a child as well as in an adult; this fact is often forgotten. The physician allows a child to suffer because he dislikes to give strong narcotics, when an adult would demand something to stop his pain. If there is high fever and a few doses of acetanilid have been given, this may prevent some of the pain, but pain is most safely combated by small doses of morphin, codein, or opium in some form. Perhaps there is no better method of giving this narcotic drug to a child than by means of the deodorized tincture of opium. The dose may be, even to a young child, one drop every hour until the child is sleeping or is quiet. If the child is very young, of course the dose should be less, and for a child 10 years of age the dose should be larger. If the brain is so affected that the child is stupid, pain is not much felt, and narcotics will not be needed. Unless the child is excessively nervous, restless, sleepless, and twitching and jerking about the bed, such cerebrospinal depressants as chloral and bromid are not indicated, as one can but feel they might tend to increase the muscle debility and paralysis that must follow the acute stage of the disease. It seems safer and more rational to give for this condition opium or one of its alkaloids in a dose sufficient to cause quiet and rest.

In this disease, as in all forms of meningitis, the bedroom should be quiet and removed as far as possible from all noise and disturbance. The child should not be unnecessarily spoken to, and there should be frequent darkening of the room in order that the patient may get all the rest possible.

During the active stage food should not be pushed. Part of the diet should be milk, and the rest of it should be cereal gruels. The diet should not be

11. Flexner, Simon: The Mode of Infection in Epidemic Poliomyelitis, The Journal A. M. A., Oct. 12, 1912, p. 1371.
12. Lucas, William P., and Osgood, Robert B.: Transmission Experiments with the Virus of Poliomyelitis, The Journal A. M. A., May 24, 1913, p. 1611.
13. Kling, Carl: The Etiology of Epidemic Poliomyelitis, Wien. klin. Wchnschr., Jan. 10, 1913, p. 41.

wholly milk, for in this as in all acute diseases the possibility of acidemic conditions occurring should not be forgotten, and starches should always be given in the form most acceptable to the patient. The first day or two the child will be thirsty, and should be allowed all the water it desires. As soon as the fever diminishes or ceases, nutrition should be pushed, and the child should be encouraged to eat so that the general strength may be recovered as rapidly as possible. If at this time the tongue is coated, the digestion poor and the appetite insufficient, it may be because gastric acidity is insufficient, and a few drops (not more than five) of dilute hydrochloric acid, in water, after meals, may aid in overcoming these conditions. Or perhaps still better is the tincture of iron chlorid in a dose of not more than three or four drops, in a little fresh lemonade or orangeade.

B. Local Treatment.—Fixation of the painful extremities and of the back, in the most restful position, with the aid of cushions and pillows, is important during the acute stage. As there is no special inflammation in any joint or muscle, cold or ice to a painful region is not indicated. Dry warmth may cause a lessening of the pain and is often of value. If the limbs affected become cold from disturbed circulation, they should be surrounded with cotton or covered with flannel. Restriction by bandages is inadvisable.

The pathologic lesions of the disease may be studied in an article by Flexner, Clark and Amoss.[14] Several years ago Lovett and Lucas[15] studied 635 cases of infantile paralysis, and came to the conclusion that paralysis of one leg was nearly four times more frequent than paralysis of both legs, and paralysis of an arm and leg of one side was more common than was a crossed paralysis. The internal muscles of an extremity were more frequently affected than the external, and the anterior than the posterior. The most common muscle to be affected in the leg they found to be the quadriceps; the next in frequency was the tibialis anticus and anterior muscles of the lower leg. If the hamstring muscles were affected it was more often the internal than the external, and the sartorius muscle they found frequently not to be affected even when the quadriceps was. They found the internal rotators of the thigh more frequently affected than the external rotators, and the adductors more frequently than the abductors. The short toe flexors they found the least likely to be affected. In the upper extremity, the arm is more frequently affected than the forearm, and the deltoid the muscle most affected, although the biceps, triceps and scapular muscles may also be affected.

During the first stages of the paralysis great care must be taken in watching the position of the limbs, especially the legs, to prevent contractions caused by the pulling of the unaffected muscles. Massage is soon valuable, but must be very gentle. Proper massage will not only increase the nutrition of the affected muscles, but cause relaxation of spasm of the unaffected muscles. It may be necessary to devise some apparatus to keep the leg or foot from becoming deformed. For this purpose various splints, or wooden or wire troughs properly padded with cotton may be used. Gibney and Wallace[16] urge that the legs should be kept straight or in slight flexion at the knees and in line with the body, while the feet should be kept at right angles with the legs.

The value of having the child, as early as possible, make slight voluntary efforts with the paralyzed muscles is excessively important. All neurologists and orthopedists now believe that one voluntary contraction of a muscle is of very much greater value than many passive activities of a muscle or contractions caused by electricity or other irritant.

Some writers believe that counterirritants applied to the spine, such as cautery treatments, are of value in hastening the stage of resolution of this disease. While they may be of value, consideration must always be given to the disturbance that it will cause the child who has suffered enough pain, and who already has difficulty in finding comfortable positions in bed.

C. Paralysis.—When the circulation is poor in an extremity, the local application of heat in any form, and perhaps by baking, is of value. As soon as it is believed that all active inflammation in the spinal cord has ceased, electricity should be begun, and Jones[17] believes that electricity should not be used until from three to eight weeks from the beginning of the infection. Galvanism should then be used on the nerve trunks, gently and not too strong, while the muscles are caused to contract by faradism as long as they react to that current. If they do not react to the faradic current, the galvanic current should be used to cause contraction by making and breaking. The rapidity of the making and breaking galvanic current should not be too great, nor should any kind of muscle stimulation be continued too long at any one sitting; in fact, at first only a few contractions should be caused.

Voluntary training directed by a skilled orthopedist, and the application of any splints or apparatus that may be necessary to prevent deformities and atrophies should soon be inaugurated, as Taylor[18] and many others believe that massage and electricity are very ineffective in causing recovery of muscles paralyzed by poliomyelitis. All physicians and surgeons urge that the greatest improvement is caused by plenty of rest in bed, graded exercise, warm baths, good food and fresh air. In other words, the better the nutrition the greater the improvement in the paralyzed muscles. Muscles may even recover after a year or more of paralysis when treated by a skilled orthopedist. It should be emphasized that rough, harsh massage and misdirected use of electricity may do serious harm to the paralyzed and contracted muscles. In a word, the general practitioner should as quickly seek the aid of the orthopedist in treating the paralysis of this disease as he would seek a skilled aurist in an internal or middle-ear inflammation.

Surgical repair of deformities that cannot be corrected by apparatus or muscle training has now reached a stage never equaled before, and tendon transplantation and other orthopedic operative measures cannot too soon be considered when improvement ceases to occur in a limb affected with paralysis from poliomyelitis. A recent discussion of this subject is presented by Moore[19] of Philadelphia.

14. Flexner, S., Clark, P. F., and Amoss, L.: Epidemiology of Poliomyelitis, Jour. Exper. Med., Feb. 1, 1914.
15. Lovett, Robert W., and Lucas, W. P.: Infantile Paralysis. A Study of 635 Cases with Especial Reference to Treatment, THE JOURNAL A. M. A., Nov. 14, 1908, p. 1677.
16. Gibney, V. P., and Wallace, Charlton: The Recent Epidemic of Poliomyelitis, THE JOURNAL A. M. A., Dec. 21, 1907, p. 2082.
17. Jones, R.: Infantile Paralysis (Acute Anterior Poliomyelitis). Its Early Treatment and Surgical Means for Alleviation of Deformities, Brit. Med. Jour., May 30, 1914; abstr., THE JOURNAL A. M. A., July 4, 1914, p. 63.
18. Taylor, H. L.: The Management of Poliomyelitis and Its Sequelae, Med. Rec., New York, Oct. 15, 1910; abstr., THE JOURNAL A. M. A., Oct. 29, 1910, p. 1590.
19. Moore, J. W.: The Surgical Treatment of Infantile Paralysis, New York Med. Jour., Aug. 29, 1914, p. 404.

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SATURDAY, APRIL 10, 1915

THE SCHICK TEST FOR IMMUNITY TO DIPHTHERIA

When it was learned that the injection of small quantities of antidiphtheric serum would protect against diphtheria for a few weeks, physicians, urged by health officers, proceeded to protect in this way practically all persons known to have been exposed to infection. At first the prophylactic injections of serum were regarded as wholly harmless, but occasionally they were followed by disagreeable results. As it became apparent that many persons do not contract diphtheria even from what must be regarded as abundant exposure, many physicians abandoned prophylactic injections of serum, choosing rather to watch persons subjected to exposure in order to begin curative treatment at the earliest moment of actual infection. It seemed preferable to proceed in this way rather than to subject immune persons to the annoyance and possible complications of serum disease.

At this juncture the introduction by Schick of a simple, intracutaneous test for immunity to diphtheria appears to provide a welcome and highly reliable means of determining whether a person is immune to diphtheria and hence in no danger from exposure. Reports from various sources are now at hand,[1] all of which agree in essentials and accept the test as reliable and practicable. The outstanding result of the work so far reported is that the Schick test should be applied to all persons who have been exposed to diphtheria, and only those who react positively should be given prophylactic injections of serum. It is evident that in institutions and in public health work the power to determine in this way who are naturally immune to diphtheria at a given time should result in much saving in antitoxic serum and also, which is more important, in the avoidance of sensitizing persons to horse serum when no advantage follows.

The technic of the test is simple and the negative result, which indicates immunity to diphtheria, is always easy to determine. Some experience is needed, however, to distinguish the positive result from certain atypical, paradoxic and so-called false reactions, especially at the end of the first twenty-four hours. The paradoxic reaction occurs sometimes in highly immune persons, and the explanation of this is not yet clear. The important factor in the test is a reliable, accurately standardized toxin solution. This should be furnished by the public health laboratories which have adequate facilities for standardization.

Particular attention may be called to one or two special instances of the usefulness of the Schick test. Weaver and Maher find the test of real value in the determination of immunity to diphtheria in interns and nurses entering service in a hospital for contagious diseases. In every case in which a positive result developed, the serum contained less than one twenty-fifth unit of antitoxin per cubic centimeter. These workers also urge the value of the test for diagnostic purposes in cases of rhinitis and angina occurring in persons immune to diphtheria. Heretofore the growth of diphtheria bacilli from the throat or nose, when the seat of inflammation, has led generally to the diagnosis of diphtheria, although it is evident that nondiphtheric rhinitis and tonsillitis developing in diphtheria bacillus carriers would not be distinguished by this method. The Schick test, however, will enable one to make this distinction, since carriers practically always have antitoxin in the blood, while persons with genuine diphtheria have none. In other words, the Schick test, combined with bacteriologic examination, will separate the carrier from the true case of diphtheria. Naturally, in cases of typical diphtheria, particularly when severe, it would be unwise to delay antitoxin injection until the results of the Schick test become apparent.

1. Bundesen, Herman N.: Schick Reaction, with a Report of Eight Hundred Tests, THE JOURNAL A. M. A., this issue, p. 1203. Graef, Charles, and Ginsberg, George: Some Observations of the Schick Test, ibid., p. 1205. Moody, Ellsworth E.: The Intradermic Diphtheria Toxin Test, ibid., p. 1206. Park, Zingher and Serota: Arch. Pediat., 1914, xiii, 481. Kolmer, John A., and Moshage, Emily L.: The Schick Toxin Reaction for Immunity in Diphtheria, Am. Jour. Dis. Child., March, 1915, p. 189. Weaver, G. H., and Maher, L. K.: The Diagnostic Value of Intracutaneous Injection of Diphtheria Toxin (Schick Reaction), Jour. Infect. Dis., 1915, xvi, 342.

THE OVARIAN FACTOR IN THE MENSTRUAL CYCLE

No longer can there be any question that the menstrual cycle in woman, like the estrous cycle in animals, is dependent in some way on the presence of the ovaries. Ovariotomy performed subsequently to puberty in women produces less marked results than when carried out in early life. The most notable effect, however, always is the cessation of menstruation; and this is sometimes accompanied by an atrophy of the breasts and a tendency toward obesity. At one time the dependence of the phenomena of heat and menstruation on the presence of the ovaries was denied, because of alleged cases of the persistence of these functions after surgical ovariotomy. It seems probable, from investigation of specific cases, that the exceptional findings are in reality to be explained on the supposition that the extirpation of ovarian substance was not complete, and that the tissue which

remained underwent hypertrophy subsequent to the operation. Indeed, it has been shown that the ovary possesses considerable capacity for regenerating tissue after partial removal, and also that if one ovary is extirpated, the remaining one may undergo an apparent increase in size, as the expression of a compensatory hypertrophy.

The precise nature of the influence which is exerted by the ovary on metabolism and particularly on the recurrence of the estrous cycle has been the occasion of much speculation. Half a century ago the physiologist Pflüger[1] advanced the theory that menstruation is brought about by a nervous reflex, owing its origin to the pressure of the growing graafian follicles on nerve endings in the ovary. Without presenting the evidence in detail here,[2] the view that the functional correlation between the ovaries and uterus is nervous in character may be dismissed as incorrect. There are facts which indicate that menstruation is not caused by a nervous reflex set up by ovulation or by the pressure of the growing follicles, and the results of transplantation experiments likewise speak against it. Successful transplantation of the ovaries to abnormal positions such as the ventral peritoneum or the tissues of the kidneys, obviously involving a break in the usual nervous connections, does not inhibit the recurrence of the estrous cycle; for the uterus in such cases retains its normal functional activity instead of undergoing atrophic changes.

In contrast with these older views, it has become probable in recent years that the periodic cyclic changes associated with the female sexual functions are brought about by some chemical substance—hormones or products of internal secretion, in terms of the latest hypotheses—which are elaborated by the ovaries and act either directly or indirectly on the tissues of the uterus and mammary glands. The elucidation of the problem as to what part of the ovary is responsible, or mainly responsible, for the recurrence of the proestrum and estrus has been undertaken by Marshall and Runciman[3] at the Field Laboratories in Cambridge, England. The experiments show that the occurrence of "heat" (proestrum and estrus) in dogs does not depend on the presence of mature (or nearly mature) graafian follicles in the ovaries. It is equally evident that it is not dependent on corpora lutea. It must be supposed, therefore, that the ovarian factor in the recurrence of "heat" resides in some other ovarian element or combination of elements. The ovarian interstitial cells are possibly concerned in the process, but cyclical changes in the condition of these cells have not so far been observed in the dog's ovaries.

1. Pflüger, E. W. F.: Ueber die Bedeutung und Ursache der Menstruation, Berlin, 1865.
2. For details see Marshall, F. H. A.: Physiology of Reproduction, London, 1910.
3. Marshall, F. H. A., and Runciman, J. G.: On the Ovarian Factor Concerned in the Recurrence of the Oestrous Cycle, Jour. Physiol., 1914, xlix, 17.

Marshall and Runciman conclude that the view which has generally been maintained, that the ripening of the graafian follicles and the onset of menstruation or heat stand to one another in the relation of cause to effect, must be finally abandoned. It is probable that both series of changes are effects of some more deep-seated ovarian phenomenon.

IS THE PHYSICIAN AN "EASY MARK"?

Regularly there drift into the office of THE JOURNAL the sad complaints of physicians who have trusted their fellow men, not wisely but too well. At least every third or fourth issue carries the old familiar heading "A Warning" and a detailed description of the latest species of the genus "fraud." The types of impostors are varied, at times, even amusing. A late specimen, leaping here and there over the country, offered to physicians, for the small sum of three dollars, a year's subscription to any of the best magazines and a set of the complete works of any of the most prolific authors. A moment of thought would have shown the willing victims that the material offered could not possibly be sold for ten times the sum. Another engaging young man packed a sample case with the latest models of medical apparatus, offered to accept orders, at half the usual price, and allowed a special discount of 10 per cent. for cash with the order. The latter saving appealed so greatly to the economical physician that the suave gentleman used up his order book before he left the town. Strange to relate, neither the syringes, hypodermics and thermometers nor the money advanced were ever seen again.

Perhaps the physician who reads this sad commentary on the perspicacity of his fellow practitioners has somewhere stored away some pamphlets on "New America and the Far East." This proposition was—and no doubt is—offered to physicians as "A Series of Scientific Lectures on Ethnology and Anthropology, Recommended by the American Medical Association." The lectures are delivered weekly at the rate of 25 cents per lecture, and the genial individual who introduces them claims that he is interested in research and the proceeds are to aid him in his monumental work. In due time the "lectures" begin to arrive at the rate of six or seven at a time. One must see these pamphlets to learn their true value—or rather lack of value. If the doctor refuses to accept them, and hesitatingly suggests that he would like to back out, the promoters try to compromise by offering something else, for example, cheap medical books, or obsolete editions of new books.

A recent scheme is a so-called medical index association. The authors of this peculiar swindle engage offices, located in high-class medical office buildings, which are equipped with new furniture and a host of

stenographers and solicitors. The offer is to send to subscribers, at the rate of five or ten dollars a year, a reprint of any article appearing in any scientific journal published in the United States or England, together with a complete monthly index of medical literature—an impossible proposition. After securing a good haul of subscriptions, the gentlemen quietly depart, leaving stenographers and solicitors jobless and penniless and the subscribing physicians innocently waiting for the fruits of their investments—which never come.

It is hardly necessary to mention the various stock-jobbing propositions which are offered to physicians as too willing victims. Putting aside the mention of worthless mining and agricultural stocks, there is the more vicious type which makes the physician a partner to a scheme for manufacturing worthless proprietary medicines and patent health foods. No physician can ethically connect himself with such schemes; from the business standpoint they are never profitable investments. We repeat—Never.

Is the doctor really an "easy mark?" He is not. The doctor is no "easier" than the preacher or—let us whisper it—even the lawyer. The professional man is not in business; he is not a "trader"; he cannot judge when a bargain is truly a bargain. Here lies the whole trouble; he is not suspicious—not on his guard. His attitude is one of sympathy with, not suspicion of, his fellow man.

IS FATTY INFILTRATION A PATHOLOGIC PROCESS?

It is not always easy to draw a sharp distinction between what is physiologic and what is pathologic in some of the processes encountered in the organism. Unusual accumulations of fat are sometimes found in the liver, the myocardium and the pancreas, and less frequently in the kidney, spleen and muscles. As a rule, such occurrences have been looked on as pathologic manifestations, ever since Virchow published his classic discussion of the forms of fatty changes which may be found under abnormal conditions and which he designated as either infiltration or degeneration. Thus, it has been contended that in certain organs fatty degeneration means an infiltration of fat from outside into cells which have been degenerated by the action of poisons or other influences; whereas, in other cases, the increase of fat seldom occurs from these causes, but the cells may show a marked fatty metamorphosis through the setting free of the invisible intracellular fat by autolytic change.

It must be recognized, however, that although in many cases the appearance of fat in cells is associated with such evidences of abnormality as a marked disintegration of both nucleus and cytoplasm, there are conditions in which cells may take up great quantities of fat without suffering any appreciable degenerative changes. Fat infiltrations of the liver are usually regarded as being pathologic and not physiologic. They accompany many pathologic states of the body; for example, diabetes, pernicious diarrhea, alcohol and chloroform poisoning, cyclic vomiting and, typically, intoxications with phosphorus and arsenic.

Rosenfeld of Breslau, to whom we owe much of our current facts regarding fatty infiltration, and who has given a new bent to the hypotheses on this subject, has denied the contention that all of the cases of the phenomena just cited are essentially of a pathologic import. If the cell is attacked by a noxious agent, according to Rosenfeld's point of view, it mobilizes energy by oxidation of all the carbohydrate at its command. For this reason the liver, for example, is often found to be glycogen-free under such circumstances. If the carbohydrate supply is inadequate to supply all the forces needed for the emergency, the cell seeks to attract fats as a sort of additional reserve. Infiltration of fat now takes place, and victory against the attack may follow. If it does not, degeneration occurs despite the fatty infiltration.[1] It has been pointed out by Coope and Mottram[2] that, according to Rosenfeld, in these fatty infiltrations, the liver is calling up the last reserves of the body to meet an emergency, presumably in its own tissue, and so may be functioning normally. They also note that Leathes suggests that the fat is being mobilized in the liver, there to be desaturated and passed on to the tissues for consumption wherever metabolism is active. Both Leathes and Rosenfeld regard the increased amount of fat in the liver as a sign that the liver is functioning normally.

It has been known for some time that starvation of quite short duration may produce a fat infiltration of the liver in certain animals,[3] yet brief hunger is scarcely to be classed as a morbid state. Coope and Mottram[2] of the University of Liverpool have now observed further that, in some individuals, late pregnancy and early lactation may be accompanied by a decided increase in the fat of the liver. Even when the animals were specially dieted, this augmentation was found to occur at or about the time of parturition. Apparently the excess of fatty material is correlated with the metabolic disturbances that attend gestation. This is substantiated, whether one depends on histologic pictures or on chemical estimations. The English investigators see in these findings, under conditions which are presumably not pathologic in the usual sense, a confirmation of the theories of Leathes and of Rosenfeld that a fatty infiltration of the liver is to be looked on as a physiologic and not a pathologic process.

1. Rosenfeld, G.: Ergebn. d. Physiol., 1903, ii (1), p. 84.
2. Coope, R., and Mottram, V. H.: Fatty Acid Metabolism in the Liver, III, Fatty Acid Infiltration During Pregnancy and Lactation, Jour. Physiol., 1914, xlix, 23.
3. Mottram, V. H.: Jour. Physiol., 1909, xxxviii, 28.

THE INCIDENCE OF CERTAIN INTESTINAL PARASITES

The greater attention which is being paid in recent years to the prevalence of intestinal parasites in man and to the statistics of their distribution will make it possible to decide to what extent certain general conclusions formed in respect to the zooparasitic diseases are tenable. Thus it is admitted that animal parasitism increases as we go from temperate to tropical climates; that all intestinal and some hepatic parasites appear to decrease hand in hand with the increased care devoted to the problem of latrines and sewers; that certain parasites are likely to be more common among persons who eat raw or rare meats, and that the incidence tends to be greater among persons of careless personal habits than among those exhibiting careful modes of life.

Some time ago we presented data[1] regarding the percentage of persons, among the inhabitants of the Philippine Islands, infected with intestinal parasites. These earlier reports were at best imperfect and, though suggestive, could not give a very accurate picture of the average prevalence of intestinal parasitism in the archipelago. A better opportunity for examining persons from all parts of the Philippine Islands, of different ages and occupations, and of all races has been offered by the material available at the Bilibid Prison at Manila, an institution which has already served in other instances as a center for conducting scientific investigations of medical interest. Dr. David G. Willets[2] of the Bureau of Science at Manila has superintended examinations of nearly eight thousand adult males on admission to the prison. Among these were 6,400 Filipinos and 1,400 Chinese, so that it is possible to consider the relative frequency of helminthiasis among these two races.

In Garrison's earlier summary of the condition among over four thousand Bilibid prisoners,[3] the findings showed a prevalence of the commoner forms as follows: *Trichuris* (whipworm) 59 per cent.; hookworm 52 per cent.; *Ascaris* (eelworm) 26 per cent. These figures dealt with cases, the majority of which were already in the institution where the sanitary conditions at the time had been deplorable; and therefore they really represent endemic conditions. When the improved hygienic conditions were introduced by the Bureau of Health, a reexamination of nearly a thousand prisoners in 1910 showed a marked lowering of the incidence of intestinal helminthiasis in correspondence with the more enlightened sanitary conditions.

Willets' summary of the infections of persons at admission shows the prevalence of *Trichuris*, 47 per cent.; *Ascaris*, 41 per cent.; hookworm, 22 per cent. Among the parasites of minor frequency were *Strongyloides*, 0.8 per cent.; the seat worm, *Oxyuris*, 0.7 per cent.; the tapeworm, *Taenia*, 0.7 per cent. In actual cases the latter represent fifty-seven each, out of 7,843 individuals.

A study of the geographic distribution of these infections with the several species of parasites found in the Filipinos of this series shows that it is extremely irregular. Adjacent northern and adjacent southern provinces gave in some instances very different results, as was predicted from former investigations. The striking outcome of the inquiry, however, was the remarkably low percentage of Chinese infected in general and with each common species of parasite. From the point of view of race distribution the incidence of intestinal parasitism is only one-third as great among the Chinese as among the Filipinos living in the same communities. The explanation of this striking outcome offered by Willets is that the Chinese are less exposed than the Filipinos to the sources of infection with intestinal helminthic parasites. It should be noted that the Chinese use chopsticks when eating, whereas lower class Filipinos use their fingers. The Chinese drink a great deal of tea, that is, they consume their water in a boiled state, whereas the Filipinos do not. The Chinese also eat less uncooked food than the Philippine natives. Finally, many of the Chinese prisoners were of somewhat better class, being shopkeepers or clerks; whereas the Filipinos were laborers and consequently more liable to soil infection than the former. Surely these statistics afford a lesson regarding the importance of habits of cleanliness.

1. Some Statistics Concerning Intestinal Parasites, editorial, THE JOURNAL A. M. A., March 21, 1914, p. 936.
2. Willets, D. G.: Intestinal Helminthiasis in the Philippine Islands as Indicated by Examinations of Prisoners on Admission to Bilibid Prison, Manila, P. I., Philippine Jour. Sc., (B), 1914, ix, 233.
3. Garrison, P. E.: The Prevalence and Distribution of the Animal Parasites of Man in the Philippine Islands. Philippine Jour. Sc., (B), 1908, iii, 1911.

PITUITARY STANDARDIZATION

The growing use of biologic products in the domain of practical therapy has brought with it certain difficulties of dosage even more annoying than the admitted uncertainty in the pharmacologic potency of some of the galenical preparations of the modern pharmacy. The alkaloid strength of some of the extracts and tinctures still in use by physicians can be determined with suitable accuracy in some cases. In others, however, the active principle on which the therapeutic value of the pharmaceutic preparation really depends cannot be appropriately estimated. Digitalis, for example, has long furnished a difficult problem for the pharmacologic assay laboratory. The best that can be done in certain instances is to subject a definite weight of some crude plant product to extraction in a prescribed way with a selected solvent and trust to good manipulation and chance to produce a solution approaching the hoped for activity.

This was essentially the scheme followed for a long time in connection with so-called organic extracts or gland preparations. The product offered for sale was represented as being equivalent to a given weight of some organ or to a certain portion of some glandular structure. Thyroid and suprarenal substance were long dispensed on this basis. The correlation of the physiologic activity of such products with specific components of the tissue—with iodin and epinephrin, respectively, in these instances—pointed the way to a better standardization of the marketed products. How desirable this has become is apparent not only because of the obvious uncertainty that must attach to the potency of a crude animal product, but further in view of the actual seasonal variations which have been shown to arise in such material as thyroid glands.[1]

Exact standardization is similarly called for in the case of commercial pituitary preparations which represent more recent accessions to the therapeutic armamentarium of the physician. It has wisely been remarked that the breadth of the field of usefulness of such a therapeutic material depends not only on a better knowledge of its physiologic action, but partly on a careful use of active preparations of known strength. It not infrequently happens that a demand is created for a promising product long before the question of dosage has been settled or the production of an active and stable preparation has been assured. The difficulty, not to say danger, becomes unduly accentuated when the mode of introduction involves parenteral paths such as by hypodermic, intramuscular or intravenous injections, in which small variations in dosage or slight contaminations exert their unexpected action far more readily than similar products may do when administered by the more uncertain oral channel.

Realizing that there exists at present an ever-increasing demand for pituitary products, especially those made from the posterior lobe, without there being a generally accepted and accurate method of determining their activity, the Hygienic Laboratory of the United States Public Health Service has taken up the problem of pituitary standardization.[2] At present it is necessary to rely on physiologic methods for this purpose. Comparisons of products can be made by the blood-pressure method and likewise by comparative observation of the effects produced on the musculature of the isolated uterus. A uniform standard available at all times in the case of the latter reaction is furnished by the pure chemical substance beta-iminazolylethylamin hydrochlorid (histamin). This substance, isolated from ergot by Barger and Dale,[3] owes its origin to the bacterial decomposition of histidin. Pharmacologically it is, like the pituitary extracts, a marked uterine stimulant, though the pure compound is much more potent.

At the outset it may be noted that in a general way the claims of the manufacturers are at present misleading, since the statement "physiologically standardized," with which many of them label their market products, means practically nothing. The variations in physiologic potency may be very great, and some manufacturers merely express the activity of their preparation in terms of fresh posterior lobe substance. Inasmuch as the pituitary preparations are reputed to be obtained from various species of animals: cattle, sheep and horses, this fact might be assumed to account for the great variations found if it were not for the fact that the greatest diversity was found even among products from cattle alone.

The wide range of physiologic activity found in samples of commercial pituitary preparations from six prominent manufacturers is shown by the ratio of variability between the strongest and weakest. By the blood-pressure method it was 15:1, by the intact uterus method about 10:1, by the isolated uterus method about 7:1. No positive reason can at present be assigned for such marked differences in activity; but the need for uniformity in the strength of commercial pituitary products has thereby been made the more apparent.

1. Seasonal Variation in Composition of Thyroid Gland, editorial, THE JOURNAL A. M. A., Jan. 9, 1915, p. 155.

2. Roth, G. B.: Pituitary Standardization: A Comparison of the Physiological Activity of Some Commercial Pituitary Preparations, Hyg. Lab. Bull. 100, U. S. P. H. S., 1914, p. 5.

3. Barger, G., and Dale, H. H.: Proc. Chem. Soc., London, 1910, xxvi, 128.

Current Comment

EFFECTS OF THE HARRISON LAW

When the Harrison law became effective, March 1, it was widely predicted that the result would be a besieging of hospitals by crazed drug addicts, a crime wave of national scope and a trail of suicide and death across the country. A month has passed, and while the results have not been as terrible as the early hysteria painted them, have not even approximated the glaring headline predictions of the yellow press, they have nevertheless been apparent to physicians and to others who come in daily contact with drug traffic. In this issue, two reports[1] appear which are evidence of this fact. In the Philadelphia General Hospital —and this is true of practically every hospital in the country in which drug addictions are treated—the number of admissions has greatly increased. Without doubt the law has forced numerous habitués, who otherwise might have been satisfied to continue as such, to apply to physicians and institutions for treatment. Further, there is no doubt that the large majority of these unfortunates will be freed of their habit. The increased admissions to these hospitals do not represent an increase in drug addictions; they are simply an objective manifestation of the operation of the Harrison law. The communication from the Cook County coroner's office presents the opposite side of the picture. It points to the suicide who anticipates

1. Society Proceedings, THE JOURNAL A. M. A., this issue, p. 1270, Correspondence, p. 1264.

his suffering as his supply of drugs ceases; it indicates the ever-hopeful victims who seek surcease of pain in deadly nostrums, and it hints at the deaths from secondary causes in weakened and collapsed bodies. It should again be emphasized that these reports are not evidence of the existence of enormous numbers of drug habitués; rather they represent the toll of a new law and the throwing of light on a hidden evil.

THE VIRGINIA HEALTH ALMANAC

The family almanac, that indispensable feature of family life, has until recently been abandoned entirely to the "patent medicine" vender and the medical faker. Four years ago, the health commissioner of Virginia, recognizing the educational value of this old family standby, decided that the best way to abolish the "patent medicine" almanac was to substitute for it a public health almanac. The Virginia *Health Almanac* was the result. This example has since been followed by the boards of health in Kansas, North Carolina, Mississippi, Texas and New York. This year for the fourth time, the Virginia *Health Almanac* has been prepared and 35,000 copies distributed. It contains information regarding phases of the moon, the time of the rising and setting of the sun and other astronomical facts found in other calendars, but instead of the testimonials and advertisements of harmful or worthless nostrums, it contains good advice on hygiene and sanitation. Instead of worthless weather predictions, it gives important facts for the prevention of disease. Each month has a page of seasonable advice. Under January, we read:

"This is the coldest month of the year in Virginia, with a mean temperature of 38 degrees. For this reason, it is a month when thousands of homes in Virginia are sealed tightly to keep out the cold and is in consequence a month of bad colds, of grippe, of pneumonia and of consumption."

"An open window is better than an open grave."

"A stitch in the underwear may save a stitch in the side."

"Disease seldom comes in a window that is open for air."

Under February appears more advice regarding consumption, influenza and similar diseases with the following epigrammatic injunction at the bottom of the page:

"A heavy overcoat is lighter to carry than a heavy cold."

March is devoted to a discussion of pure water, April to the sanitary disposal of waste, May to pure milk and infant feeding, June to typhoid fever, July to hookworm, August to mosquitoes, September to diphtheria, October to school hygiene, school luncheons and vaccination, November to smallpox and December to children's diseases, whooping cough, scarlet fever and measles.

Supplementary chapters on the first aid to the injured, care of infants, directions for nursing typhoid fever cases, instructions for preparing disinfectants and drugs and diagrams for building fly traps complete the almanac. It possesses all the characteristics of the old family almanac, even the yellow string in the upper left hand corner, by which it can be hung up on the nail behind the kitchen door or beside the fireplace. If every family in Virginia will secure a copy, keep it throughout the year and read it carefully, the results will many times repay the cost of preparation and distribution.

THE LIMIT IN "TWILIGHT SLEEP" SENSATIONALISM

Scopolamin-morphin anesthesia, or, as the public now knows it, "twilight sleep" in obstetrics, has gone to such an extent that even the motion picture has been called on to promote it. The motion pictures are reported to contrast the supposed agonies of a woman in labor under normal conditions with the quiet somnolence which is supposed to characterize the parturient woman under scopolamin-morphin anesthesia. The exponent advertised to accompany the pictures with a "solo" on the pains of childbirth is one Dr. Kurt E. Schlossingk, announced as a disciple of Freiburg who has come as the Messiah of pregnant women promised by *McClure's, Ladies' World, Metropolitan* and various newspapers. When Dr. Schlossingk, whose medical history is short, arrived in this country, he joined the staff of a New York hospital which has been pushing the method, and was soon lionized by enthusiastic ladies and a few physicians who seemed anxious to pose in the limelight of this late acquisition. Dr. Schlossingk was invited to be the guest of honor at a symposium on scopolamin-morphin anesthesia before the Chicago Medical Society and the evening was given over to high praises of the method and its exponents by a few local adherents. This was the occasion of Dr. Schlossingk's first visit to Chicago. A week ago advertisements in Chicago newspapers announced the second coming of Dr. Schlossingk, this time in his rôle of "headliner" with the motion pictures. Chicago is possessed of a municipal censor board. Just previous to the first matinee, the newspapers announced that this board had ruled that the exhibition could not be given as it was "unscientific and detrimental to the public." The verdict, according to the general newspaper accounts, was based on the unanimous opinion of three Chicago physicians. There is no better place to hit schemes of this nature than in the pocketbook. A week's advertising paid for and the exhibition could not take place! An appeal was taken to the mayor—who refused to dignify the exhibit even by looking at it.

THE PERSISTENCE OF INFECTIVITY IN PLAGUE

In view of the important part played by fleas in the epidemiology of plague, it has become desirable to ascertain details regarding the viability of the *Bacillus pestis* and likewise the conditions under which the infecting insects can survive and retain their capacity to transmit the disease. It has been found that infected fleas which were fed regularly might live for fifty days at from 10 to 15 C. (50 to 60 F.) and twenty-three days at 27 C. (80.6 F.), and remain infected at death.[1]

1. Bacot and Martin: Observations on the Mechanism of the Transmission of Plague by Fleas, Jour. Hyg., Plague Supplement III, Jan. 14, 1914, p. 429.

The Commission for the Investigation of the Plague in India[2] noted that infection conveyed by fleas might take place three weeks after the flea population had had any opportunity of imbibing infected blood. The entomologist of the Lister Institute in London, Dr. A. W. Bacot,[3] has lately observed that fleas (*Ceratophyllus fasciatus*) are able to carry the bacillus of plague for periods up to forty-seven days in the absence of any host, and subsequently infect a mouse. He concludes that there is no reason to suppose that the positive results here recorded from a few experimental trials represent the limit of time after which infection may still take place. The indications thus are that plague infection may persist in fleas for one or two months in cool weather, and subsequently give rise to an epizootic.[4] In this connection it is not without interest to recall that animals have been infected by the bites of bugs (*Cimex lectularius*) which had previously been allowed to feed on animals that were dying of plague.[5] According to new observations by Bacot[6] for a percentage of bugs and probably all newly hatched ones, a meal of septicemic blood from a mouse dying of plague is fatal. Bugs which are not killed, however, by the infecting meal are capable of carrying *Bacillus pestis* and reinfecting mice after a period of forty-eight days' starvation.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

State Association Meeting.—The annual meeting of the Medical Association of the State of Alabama will be held in Birmingham, April 20-23, under the presidency of Dr. Benjamin B. Simms, Talladega. Dr. Wellington P. McAdory, Birmingham, is chairman of the committee of arrangements.

Personal.—Dr. William G. Floyd, Roanoke, was thrown from his buggy, March 24, and dislocated his left shoulder. ——Dr. Eugene D. Bondurant, dean of the Medical College of the University of Alabama, Mobile, is reported to be critically ill at the Inge-Bondurant Sanatorium, Mobile.——Dr. W. Earle Drennen, Birmingham, for several months chief of the American Ambulance, Paris, has returned from abroad. ——Dr. Milton P. James, Birmingham, has been appointed deputy collector under the Harrison antidrug act.——Dr. Richard L. Penn, Florence, has purchased the Thrasher Building on Tuscaloosa Street and has remodeled it as a hospital.——Dr. Henry P. Hirshfield, Mobile, coroner of Mobile County, who was operated on at St. Agnes' Hospital, Baltimore, recently is reported to be doing well.

Hospital Notes.—More than $1,000 was collected for the benefit of a free clinic at St. Vincent's Hospital, Birmingham, on Flag Day, March 17.——Dr. Ira W. Ballard, Opelika, is in charge of the construction and equipment of a hospital for that city.——The Williamson-Faulk Infirmary, Tuscaloosa, has been sold to a syndicate of ten physicians who will improve the equipment and will operate the institution through a board of control. The syndicate is composed of Drs. James L. Williamson, William M. Faulk, Joseph E. Shirley, John H. Ward, Daniel W. Ward, Artemus D. Killian, George H. Searcy, Harvey B. Searcy and James H. Somerville, Tuscaloosa, and Dr. Charles P. Bell, Northport. The new institution will be known as the Druid City Infirmary. ——Work is soon to be commenced on the free dispensary to be erected on a site adjoining the Hillman Hospital, Birmingham.

CALIFORNIA

Medical Library Association Incorporated.—The San Diego Medical Library Association has filed articles of incorporation. The directors for the the first year are Drs. Fred R. Burnham, Andrew J. Thornton, Henry Parker Newman, Robert Pollock, William P. Williamson, John E. Jennison, Charles M. Hosmer, Frances M. Allen, Elwyn S. Coburn, National City, David Gochenauer, Harry C. Loos and H. T. Woodward.

Vaccination Law Upheld.—The compulsory vaccination law of 1911 was upheld by Attorney-General Webb in an opinion answering an inquiry from San Diego as to whether there were any exceptions to the law. It was held that an exception existed in the case of pupils of the schools whose parents furnished certificates setting forth conscientious scruples against the practice of vaccination. This is qualified, however, by the state law which requires dismissal from the schools of all unvaccinated pupils whenever a case of smallpox is reported in a school. The law was also formally upheld in the case of a student excluded from the state university because he refused to be vaccinated.

Personal.—Dr. Earl H. Coleman, San Jose, has been placed in charge of the government hospital and sanitation camps at Yosemite.——Dr. George M. Converse has been appointed chief sanitary inspector of the San Francisco Board of Health, succeeding Dr. William C. Hassler, who has been made health officer.——Nathan G. Hale, Sacramento, has been appointed assistant secretary of the State Board of Health.——Dr. Richard G. Brodrick, health officer of San Francisco, has been appointed medical superintendent of the new City Hospital.——Dr. Luther M. Powers has been reappointed health commissioner of Los Angeles.——Dr. John A. Randolph, Willow, is reported to be critically ill.——At the annual meeting of the Alameda County Society for the Study and Prevention of Tuberculosis the following physicians were elected directors: Drs. Philip F. Abbott, Florence M. Sylvester and Hayward G. Thomas, Oakland; Drs. John N. Force, Allen F. Gillihan and Clarence W. Page, Berkeley; Dr. Arthur Hieronymus, Alameda, and Dr. Charles H. Miller, San Leandro. Drs. Frederick W. Browning, Hayward, and Alexander S. Kelly and Edward von Adelung, Oakland, were elected members of the executive committee.

GEORGIA

Personal.—Dr. A. Nathan Dykes, Calhoun, has sailed for Europe, March 27, for service with the American Red Cross in England.——Dr. William C. Lyle, Augusta, is serving as temporary manager of the new University Hospital, Augusta, which will, it is expected, be opened this month.

University Takes Over Medical School.—The trustees of Emory University, Atlanta, which is being developed under the auspices of the Methodist-Episcopal Church, have agreed to take over the Atlanta Medical College as its medical department. For this department it is proposed that $250,000 be set aside as an endowment. The trustees have also agreed to erect a new teachers' hospital near the medical school, to cost from $300,000 to $350,000.

Hospital Items.—The Manchester Sanitarium was destroyed by fire, March 18. The patients were rescued without casualty.——The Cordele Sanitarium was destroyed by fire, March 16, with a loss of $5,000 without casualty to the patients or nurses.——It has been suggested by County Commissioner Girard that on the completion of the Columbus City Hospital, the old hospital be used for housing and caring for patients with pellagra, tuberculosis and kindred contagious diseases.

ILLINOIS

Eugenics Bill Introduced.—The first eugenics bill of the session was introduced in the senate by Dr. James A. Womack, Equality. The bill requires that health certificates,

2. Reports on Plague Investigations in India, Jour. Hyg., 1906, vi, 435.

3. Bacot, A. W.: Observations on the Length of Time that Fleas (Ceratophyllus Fasciatus) Carrying Bacillus Pestis in Their Alimentary Canals Are Able to Survive and Retain the Power to Reinfect with Plague, Jour. Hyg., Plague Supplement IV, 1915, 770.

4. Climate and the Distribution of Plague, editorial, The Journal A. M. A., April 3, 1915, p. 1162.

5. Verjbitzki: The Part Played by Insects in the Transmission of Plague, Jour. Hyg., 1904, viii, 185.

6. Bacot, A. W.: Notes on the Development of Bacillus Pestis in Bugs (Cimex Lectularius) and Their Power to Convey Infection, Jour. Hyg., Plague Supplement IV, 1915, p. 779.

signed by physicians, shall be presented by the man and the woman prior to the issuance of a marriage license and that no county clerk shall issue a license to any person suffering from a transmissable disease.

Bill to Minimize Blindness.—A bill designed to minimize blindness was introduced in the House, April 1, by Representative William G. Thon of Chicago. The bill is said to have the support of the State Board of Health and of medical organizations. It provides that a report must be made to the State Board of Health of all cases of infants born blind or with sore eyes, within six hours after the physician has discovered that this condition exists. Provision is also made for the free distribution of nitrate of silver for the treatment of these cases.

Aid to Feeble-Minded.—The Illinois State Charities Commission has appointed a committee consisting of Mr. Sherman C. Kingsley, chairman; Drs. Anna Dwyer, Chicago; Thomas H. Leonard, Lincoln, and Clara Harrison Town; Messrs. Albert Huber and Peter Reinberg, Hon. Harry Olson, Prof. Henry Schofield, Miss Minnie F. Loe and Mrs. A. E. Walker, to draft bills to regulate the admission of feeble-minded persons to state institutions, and to make suitable provision for the care of feeble-minded women. This bill, which has been drafted by Professor Schofield, secures to the state the power to detain permanently its feeble-minded charges, provides that the state care for feeble-minded adults as well as children, gives to the state the power to care for feeble-minded delinquents and creates an institution for the care of feeble-minded women adults.

Chicago

Chicago Welcomes Spivak.—The Chicago friends of the Denver Consumptives Relief Society entertained Dr. Charles Spivak, executive secretary and founder of the Denver Hospital, on March 24, 25 and 27. Dr. Spivak spoke also at the Ashland Club, at the Chicago Hebrew Institute and before the Young Men's Associated Jewish Charities.

Prophylactic Silver Solution.—The Bulletin of the Chicago School of Sanitary Instruction announces that the State Board of Health has furnished a supply of silver nitrate solution for prophylaxis in ophthalmia neonatorum which will be distributed free to those entitled to attend births. The only requirements are to give the name and address of the person receiving the solution and to report all births according to law. The Department of Health in the city hall is one of the stations from which the solution will be supplied.

Personal.—Dr. I. Clark Gary was injured in a collision between automobiles, April 4.——Dr. George L. Perusse, for two years superintendent of the Michael Reese Hospital, has resigned.——The charges against Dr. Andre L. Stapler, which he went to New York to meet, were dismissed, March 25, and Dr. Stapler was exonerated.——Dr. Edward Luehr, accused of an attack on a girl in South Chicago, was exonerated at the trial, March 25, the judge stating that he did not believe that there was a word of truth in the statement of the plaintiff and apologized for having dragged a reputable professional man into so disagreeable publicity.

Presentation of Willard Gibbs Medal.—The Chicago Section of the American Chemical Society announces that a reception and dinner, April 16, at the Hotel Sherman, will be given at the presentation of the fifth Willard Gibbs medal founded by William A. Converse to Arthur Amos Noyes, Ph.D., LL.D., Sc.D., director of the Research Laboratory of Physical Chemistry in the Massachusetts Institute of Technology, Boston. The program includes an address on the Willard Gibbs Medal by Otto Eisenschiml, chairman of the Chicago section; the presentation of the medal to Dr. Noyes by Prof. Julius Stieglitz, director of the university laboratories, University of Chicago, and the Willard Gibbs address on "A System of the Qualitative Analysis Including Nearly All the Metallic Elements," by Dr. Noyes.

MARYLAND

Correction.—Dr. Flora Pollack, Baltimore, writes that the item on night clinics on page 1005 of the March 20 issue is incorrect in that she is not at present on the Johns Hopkins Medical School staff and that she is not establishing a recreation center, but is one of a number of women interested in this work.

Hospital Would Enlarge Plant.—The Maryland General Hospital will launch on April 12, a campaign to raise $200,000 for the building of new wards and private rooms and for remodeling the institution. The campaign will be state-wide and will be conducted by the Methodist churches and Epworth League organizations of the state.

Health Conference for Negroes.—The first health conference of the Maryland Colored Health Association was held in Baltimore under the auspices of the Medical and Chirurgical Faculty of Maryland, March 25. The meeting was presided over by Dr. Emil Novak and among the speakers were Dr. William H. Welch and Rev. Booker T. Washington. The conference proposes to meet the problem of colored sanitation by strict enforcement of the rules of sanitation and by the education of the colored population to the white standard.

Personal.—Drs. Veader N. Leonard and Henry N. Shaw, Baltimore, who have been on duty for six months in British base hospitals, have returned to Baltimore.——Drs. William H. Welch and Howard A. Kelly, Baltimore, have agreed to serve on the special emergency committee to devise plans to combat the epidemic of typhus fever in Serbia.——Dr. Winton M. Nihiser, Hagerstown, while attending a family suffering from the effects of carbon monoxid gas, was partially overcome by the gas.

Antifly Campaign.—A campaign to annihilate the fly has recently been inaugurated in Baltimore by Dr. Nathan R. Gorter, health commissioner. The campaign was opened by a lecture given all the health wardens, sanitary officers and other employees of the department by Dr. William R. Stokes, bacteriologist for the city and state. Dr. Stokes showed and explained pictures of the domestic fly and pointed out its capacity for carrying disease, particularly typhoid fever and summer complaints fatal to infants. Dr. Gorter will make an aggressive fly campaign, backed up by a city ordinance regulating stables and with the cooperation of the householders.

MASSACHUSETTS

New Officials in Office April 1.—The eleven medical inspectors of health of Boston terminated their services on March 31, and were replaced by eight district health officers, who began their duties on the next morning.

Cutter Lectures.—The Cutter lectures on preventive medicine and hygiene for 1915 will be delivered by Dr. Victor C. Vaughan, Ann Arbor, dean of the School of Medicine and Surgery of the University of Michigan, on April 14, 15 and 16, at the Harvard Medical School Amphitheater Building, from 5 to 6 p. m., on "The Phenomena of Infection."

Personal.—Dr. Edward W. Barrett has been appointed city physician of Medford.——Dr. Frank H. Holt, assistant superintendent of the Boston City Hospital for eighteen years, has been elected superintendent of the Michael Reese Hospital, Chicago.——Dr. Philip Castleman, Boston, assistant director in the bacteriologic laboratory of the Boston Board of Health, has been appointed director of the laboratory, succeeding Dr. James J. Scannell, deceased.

Quarantine Under Federal Control.—The Boston city council committee on ordinances, March 24, reported favorably on the proposition to transfer the control of the port quarantine station to the federal government. It is proposed that the federal government shall be required to lease the present station on Gallop's Island until an agreement is reached in regard to the price to be paid by the government for the property. A similar proposition in regard to federal control of quarantine in the port of New York has been under consideration in the latter city.

MISSOURI

Personal.—Dr. Herbert S. Hill is reported to be ill at his home in Springfield.——Dr. Frederick Hagler, St. Louis, has sailed from New York for work with the Red Cross units in Serbia.——Dr. Paul Paquin, formerly secretary of the State Board of Health of Missouri, has been placed in charge of the plan of reorganization of the Health Department of Kansas City.——Dr. William L. Gist, Kansas City, has been appointed acting health commissioner.——Dr. Walter S. Wheeler, health commissioner of Kansas City, resigned, to take effect April 1. The postion of assistant health commissioner, held by Dr. Hasbrouck De Lamater, was abolished April 1.

St. Louis

Memorial to Dr. Steer.—The Alumni Association of Washington University Medical School is erecting a memorial to

the late Dr. Justin Steer, St. Louis. Those of his students who desire are asked to contribute $1 to the fund for that purpose. This donation may be mailed to Dr. Louis H. Hempelmann or Dr. William T. Coughlin, Metropolitan Building, or to Dr. Andrew C. Henske, Sarah and Easton Avenues.

NEW JERSEY

New Hospital for Atlantic City.—The freeholders of Atlantic County are preparing to build a model tuberculosis hospital among the pines on the mainland. The structure will cost about $30,000.

Smallpox in Millville.—The discovery of about seventy-six cases of smallpox at Millville, with extension of the disease from Millville to Camden, has led to vigorous measures on the part of the local authorities of those cities and the state health authorities to stamp out the disease. The state board promptly issued an advisory notice regarding the vaccination of all inhabitants of Millville and the surrounding villages who had been exposed, and vaccination was carried out.

NEW YORK

Scarlet Fever in Hobart College.—Owing to an outbreak of scarlet fever Hobart College closed for its Easter vacation three days in advance of the scheduled time.

More County Tuberculosis Hospitals.—Definite sums of money ranging from $10,000 to $50,000 have been appropriated for the establishment of tuberculosis hospitals in Lewis, Chenango, Suffolk and Nassau counties.

Site Donated for Hospital.—Elbert C. Livingston has offered a hospital site for the Southside Hospital, Babylon, subject to the erection of a building to cost not less than $25,000, on or before Jan. 1, 1920. The site is estimated to be worth about $5,000.

Bills Killed in Committee.—The Assembly Public Health Committee has killed the bill aiming to legalize chiropractice, also one designed to permit the use of the words "trained nurse" only in connection with graduates of certain schools, one providing for the appointment of a state dental supervisor and the general bill defining unprofessional conduct of physicians.

Bloch Drug Bill Passes Assembly.—This measure which aims to close the channels of sale of habit-forming drugs and makes the sale of such drugs to persons under 16 years of age a felony instead of a misdemeanor has passed the Assembly. The bill in this form was opposed by several lawyers on the ground that it was too difficult to secure a felony conviction before a jury.

Compulsory Vaccination Bill Approved.—Governor Whitman has signed the Tallett bill which makes vaccination compulsory in cities of the first and second class in both public and parochial schools. Hitherto vaccination was compulsory only in the public schools. The bill also provides that whenever there is an outbreak of smallpox in third class cities and rural communities the school authorities shall be directed to bar all unvaccinated pupils.

Coroners Abolition Bill Passed.—The Stoddard bill abolishing the office of Coroner in New York City passed the Assembly on April 1st by a vote of 86 to 28. The bill carries an amendment providing that present coroners may be retained in office until the expiration of their terms of office Jan. 1, 1917, when they will be replaced by a Chief Medical Examiner and assistants to be appointed by the mayor.

Would Have Health Commissioner Whole-Time Employee.—A bill has been introduced into the legislature by assemblyman Hinman, which makes it incumbent on the state health commissioner to devote his entire time to the duties of his office, and furthermore, that each director of the division of the State Health Department must give his whole time to the duties of his position. Under the present law, the state health commissioner is forbidden to engage in any occupation which will conflict with his official duties.

New York City

Personal.—Dr. John Winters Brannan, president of the medical board of the Willard Parker and Riverside hospitals for many years, has resigned. Dr. John H. Huddleston has been elected to fill the vacancy caused by Dr. Brannan's retirement.

Bio-Chemical Association Dines.—The fourth annual dinner of the Columbia University Bio-Chemical Association was given at Reisenweber's on March 27, when Dr. Samuel J. Meltzer was the guest of honor and delivered an address on "Some Phases of the Relations of Bio-Chemical Research to Medicine."

Will Await Selection of Successor.—Dr. Sigismund S. Goldwater has withheld his request to be relieved as health commissioner of New York City until the mayor shall have selected his successor. When this selection has been made, Dr. Goldwater will resume his duties as superintendent of Mt. Sinai Hospital.

Another Typhoid Outbreak Traced to "Typhoid Mary."—The source of the typhoid epidemic which occurred in Sloane Maternity during January has at last been discovered in a typhoid carrier, Mary Mallon. An investigation of her history in 1906 showed that in a number of families in which she had been employed as a cook members of the household came down with typhoid fever. She was then kept virtually a prisoner on North Brother Island for three years, when her liberty was granted on the condition that she would not hire out as a cook. Officials of the Health Department now find that she has worked as a cook under five different aliases under one of which she secured the place at Sloane Maternity. Here she was responsible for twenty-five cases of typhoid fever, two of which resulted fatally. At the time the employees of the institution were examined she showed a slight trace of the disease and disappeared and the health authorities have just succeeded in locating her. Dr. Egan of the Health Department states that she carries bacilli of a high degree of infectiousness.

NORTH CAROLINA

Personal.—Dr. Lucius N. Glenn, Gastonia, has been appointed assistant local surgeon of the Southern Railroad. ——Dr. M. T. Edger, Fremont, has been appointed whole-time health officer of Pitt County.——Dr. Thomas O. Coppedge, Raleigh, has resigned as assistant physician at the State Hospital.

Prevention of Malaria.—In 1914, 6½ miles of streams and pools near Roanoke Rapids were oiled, at a cost of $300, for the purpose of preventing mosquito propagation. More than 3,000 gallons of oil were used. So successful was this measure in its effect on the incidence of malaria among the mill workers of Roanoke Rapids that the mill owners will repeat the procedure during the coming season.

Good Work of the State Board of Health.—The New York *Tribune* devoted a page of its Sunday issue, February 28, to the thoroughness and effectiveness of the work of the State Board of Health. Especial praise is given to the secretary of the board, Dr. Watson S. Rankin, Raleigh, who is in charge of the publicity work of the board and is carrying on so effectively the campaign against nostrums and patent medicine fakers, and to Mr. Warren H. Booker, chief of the bureau of engineering and education of the board, who is in charge of the publicity and public education work. The enthusiastic support of Dr. J. Howell Way, Waynesville, president of the board, has been continually given to the work.

OHIO

Medical Board Appointments.—The governor has reappointed Dr. Sylvester M. Sherman, Columbus, a member of the State Medical Board and has appointed Dr. John K. Scudder, Cincinnati, to succeed Dr. Silas Schiller, Youngstown.

Building for Physicians.—A building exclusively for physicians is to be erected in Toledo. For this purpose the Park View Company has been incorporated by Drs. Louis A. Levison, Julius H. Jacobson, Burt G. Chollette and Fred M. Douglass. The building will be two stories and a basement in height, the equipments will include laboratories, operating rooms, rest rooms, gymnasium, etc.

Personal.—Dr. Hugh H. Dorr, Batesville, has been appointed assistant medical examiner in the State Industrial Commission.——Dr. Frank I. Shroyer, Troy, who was operated on recently at Rochester, Minn., has recovered and is continuing his postgraduate work at the Mayo Clinics.——Dr. T. Addison McCann, Dayton, was attacked by an enraged bull on his farm south of Dayton, and seriously injured.

Hospital Intern Service.—At a recent meeting the Ohio State Medical Board took action to permit students to serve as interns in the hospitals of Ohio without first securing a license, which has heretofore been required. Such students must have completed satisfactorily a four-year course in a recognized medical college. They are not permitted to sign

death certificates nor to receive compensation for professional service rendered.

PENNSYLVANIA

Personal.—Dr. J. William Schultz, Tremont, is reported to be in a critical condition as the result of an explosion of gasoline while filling the tank of his automobile, March 27. ——Dr. William J. Bailey, Connellsville, who was operated on recently for frontal sinusitis, is reported to be improving.

Wassermann Tests Free.—On April 2 the state commissioner of health, Dr. Samuel G. Dixon, notified the physicians of Pennsylvania that the State Department of Health laboratories would make the Wassermann test on request. Special containers have been prepared for the collection of the blood specimens and will be furnished physicians without charge on application.

Philadelphia

Physicians Sign Petition for Local Option.—Philadelphia's physicians headed by Dr. E. E. Montgomery, president of the county medical society, will send a petition to the legislature asking for the passage of Governor Brumbaugh's county option law in the interest of the health, morals and the protection of the present and future citizens of the commonwealth.

Personal.—Dr. J. Louis Borsch, Jr., at present in charge of the Eye Department of the Military Hospital of Paris, was thanked for his work among the French wounded by Surgeon-General Fevrier, April 2, at the formal opening of that department.——Dr. Clarence P. Franklin has been elected ophthalmologist to Stetson Hospital.——Dr. Harold P. Goldberg has been elected ophthalmologist to the Episcopal Hospital vice Dr. John L. Broomley, deceased.

TEXAS

Hospital Incorporated.—The Bay City Hospital has been incorporated at Bay City, Matagorda County, with a capital stock of $3,500.

Doctors Club Formed.—The physicians, dentists and druggists of Dallas have organized the Doctors' Club, the first meeting of which was held in the Oriental Hotel, March 27.

Surgeons Organize Society.—The Texas Surgical Society was organized in Houston, March 6, with Dr. James E. Thompson, Galveston, president; Dr. W. Burton Thorning, Houston, secretary, and a charter membership of twenty-one.

Texan Made Editor of Pharmaceutical Journal.—Dr. E. G. Eberle, Dallas, editor of the *Texas Pharmaceutical Journal*, has been unanimously elected editor of the *American Pharmaceutical Journal*, the official publication of the American Pharmaceutical Association.

District Society Changes Name.—At the meeting of the Fifty-Sixth District Medical Society held in San Antonio, March 16, it was decided to change the name of the society to the Southwest Texas Medical Society. The next meeting of the society will be held in Corpus Christi in September.

Personal.—Dr. Joseph H. Reuss, Cuero, has been elected president of the Cuero Commercial Club.——Drs. Rupes F. Minnock, Shirley C. Gage, Robert J. Alexander, Waco, are the medical members of the board of control for nurses, selected by the city commission of Waco.——Dr. Hatch W. Cummings has been elected president of the Chamber of Commerce of Hearne.——Dr. Allen Hutchinson, formerly of Houston and now in charge of the Presbyterian Hospital at Kashing, China, is visiting in Houston.

Quarantine Proclamation.—The annual quarantine established on the gulf coast and Rio Grande border was proclaimed by the governor, March 23, to become effective April 1. The quarantine applies to all vessels, railway trains, persons or things coming from places infected with yellow fever, smallpox, bubonic plague or cholera, and all places south of 25 degrees north latitude will be considered infected unless proof to the contrary is submitted to the state health officer and special exemption granted. Rules of coast quarantine are set forth in the proclamation at length. There are also other provisions regarding communicable diseases liable to be transmitted within or without the state, and directing the state health officer to make provision for their isolation and to establish the necessary regulations.

WYOMING

State Board Election.—At the annual meeting of the State Board of Health, held in Cheyenne, March 23, Dr. Anna G. Hurd, Sheridan, was elected president and Dr. William A. Wyman, Cheyenne, was reelected secretary and executive officer.

CANADA

Ryerson Off for the War.—Col. George A. Sterling Ryerson, M.D., Toronto, president of the Canadian Red Cross Society, sailed from New York, April 3, on the *Lusitania*. He will make a tour of inspection of the hospitals and Red Cross work at the seat of war. This inspection will include hospitals in England and France. He will return to Toronto in June.

Canadian Soldiers Must be Vaccinated.—Orders were sent out March 26 to officers commanding the various units of the fourth division, calling attention of the recruiting officers to the fact that all recruits must be revaccinated against smallpox, if the medical examiners consider this necessary. If a recruit refuses to be vaccinated, he will not be accepted for service.

Canadian Medical Association Meeting Cancelled.—The annual meeting of the Canadian Medical Association which was to have been held this year in Vancouver, B. C., July 7 to 10, has been cancelled, owing to the absence of members at the front or preparing to leave for the front with the McGill and Toronto base hospitals. Among the number are members of the finance committee, the executive council and the secretary-treasurer, Dr. William W. Francis of Montreal.

Canadian Medical Men Wanted by War Office.—The British war office has forwarded a request for Canadian medical practitioners. Any Canadian physician volunteering will be given the rank of lieutenant and will receive $6 per day, $150 for equipment and $300 on conclusion of a year's service providing that service has been satisfactory. In Toronto Col. John T. Fotheringham reports that already seventy practitioners have volunteered. They must join the service through the Canadian army medical corps, must be British subjects, be recommended by the commanding officer of the division or district, under 45 years of age, and practitioners registered under Dominion or Provincial license. To provide for the Canadians practicing in Great Britain, the provinces have to arrange for immediate reciprocity. In the case of Ontario, the legislature has passed a bill authorizing this and Dr. Edmund E. King of the Ontario Medical Council, has cabled to the General Medical Council that Ontario is ready to reciprocate.

Hospital News.—Montreal is to erect a tuberculosis hospital to cost $125,000. The medical officer of health of Montreal, Dr. Seraphin Boucher, says that if a start is to be made, a hospital for at least 100 patients is required, and that more work must be done among the poor of the city. At the present time only advanced cases can be treated extensively. In connection with the new hospital three dispensaries will be established in the outlying districts of that city.——Hamilton, Ont., is commencing the construction of the first unit of its new hospital, which will be a four-story building to cost $150,000. This building will accommodate 65 semi-private patients.——Fire destroyed the Bracebridge, Ontario, Isolation Hospital in January.—— The Quebec Civic Hospital will be completed by the middle of April. It will be conducted by the Sisters of Charity.—— A military hospital is to be established in Winnipeg.—— Melville, Sask., will commence the erection of a new hospital in May. The building will be four stories in height and will have accommodation for 150 patients.——Patients owe the Royal Columbia Hospital, New Westminster, B. C., $24,000. The hospital is badly in need of funds and an effort is to be made to collect this money, or sue the municipalities which supplied the patients.

Personals.—Dr. Malloch, son of Dr. Archibald E. Malloch, Hamilton, Ont., is in charge of the La Panne Hospital in which the queen of the Belgians is interested. A request from this hospital has come to Canada for twenty nurses. A citizen of Cornwall, Ont., has contributed $500 toward sending one nurse to that hospital, through the Red Cross of Glengarry, and another $500 through the Daughters of the Empire at Cornwall, toward sending another nurse to the same hospital.——Lieut.-Col. James A. Roberts, M.D., Toronto, and Capt. John A. Amyot, M.D., Toronto, have resigned from the administrative branch of the service in Toronto. Dr. Roberts will be in command of the University of Toronto General Hospital, and Dr. Amyot is to be sanitary officer. Lieut.-Col. Frederick W. Marlow, M.D., Toronto, will be appointed successor to Dr. Roberts, and Dr. John W. S. McCullough, Toronto, chief health officer of

Ontario, will take up Dr. Amyot's duties in the Toronto District Administration of the Army Services.——Dr. George Elliott has been elected president of the Irish Protestant Benevolent Society, Toronto.——Dr. James W. Good, Winnipeg, Man., has started for the east to join the second Canadian contingent for service in Europe.——Dr. Theophilius V. Hutchinson, medical officer of health of London, has resigned.——Dr. Harold E. Connelly, Ottawa, has been appointed medical officer of troops garrisoned in West Indies, and has started for his new post.

GENERAL

The Plague Work in New Orleans.—One suspicious human case of plague was examined in the week ending April 3, but no human plague case was found. The last case of human plague was reported on Oct. 4, 1914, and the last case of rodent plague on March 9, 1915. The total number of rodents captured was 307,203, of which 230,009 were examined. Up to date, 236 rodent cases have been found, 4 in mus musculus, 16 in mus rattus, 207 in mus norvegicus and 9 in mus alexandrinus.

Federal and State Laws Regarding Narcotics.—Martin I. Wilbert in *Public Health Reports*, March 26, 1915, gives a history of efforts to curb the misuse of narcotic drugs, with a comparative analysis of the federal and state laws designed to restrict or to regulate the distribution and use of opium, cocain and other narcotic or habit-forming drugs. It is said that drug addiction has reached great proportions in the United States and its possibilities for harm constitute a great menace. In view of the enforced attention to this subject brought about by the passage of the Harrison law, this review of antinarcotic legislation in the various states is of extreme interest. A synopsis of the laws relating to narcotics in each state is given.

Rockefeller Fund for Medical Mission.—A letter has been sent by Mr. John D. Rockefeller, Jr., to all American missionary societies, announcing the formation of the China medical board through which the Rockefeller Foundation will give financial support to medical work in China. The foundation makes the following offers to the society: (1) to assist with more grants their medical school and hospitals, making no condition save that the foundation assure itself of the professional qualifications of those in charge; (2) to help reorganize and expand medical schools with their hospitals; (3) to establish new hospitals and medical colleges where the societies have not been able to, but to do so in a missionary spirit and motive.

Testimonial Banquet to Dr. Jacobi.—A testimonial banquet will be tendered Dr. Abraham Jacobi by the medical profession, his friends and admirers, under the auspices of the Bronx Hospital and Dispensary, May 6, at the Hotel Astor, on the occasion of the eighty-fifth anniversary of his birthday. To give the younger members of the profession an opportunity to participate in the celebration, and to come in contact with the venerable Nestor of American medicine, the price per plate has been fixed at $3. Communications should be addressed to Dr. William J. Robinson, 12 Mount Morris Park West. Reservations for seats should be sent to Abraham L. Goldwater, M.D., treasurer, 141 West One Hundred and Twenty-First Street.

San Francisco Child Labor Conference.—The Eleventh Annual Conference on Child Labor, to be held in San Francisco the last week in May, will be the first national conference on child labor held west of the Mississippi River. An effort will be made at this conference to further the plan suggested at the Washington meeting in January of the National Child Labor Committee for a national children's charter which will be the basis of all child welfare legislation and will unify the work of all child welfare societies. Among other subjects to be discussed at the conference are child labor in the west, industrial education, and federal legislation. The Palmer-Owen federal child labor bill which passed the House but was killed in the federal senate will form the basis for a new bill to be introduced into the next congress, and plans for pushing it will be discussed at the San Francisco meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

The United Hebrew Charities, Mt. Sinai Hospital, Montefiore Home for Chronic Invalids, New York City, each $1,000, by the will of Sarah Frank.

Columbia University, for the Sloane Maternity Hospital, $50,000; Presbyterian Hospital, $22,500; St. Luke's Hospital, $75,000, by the will of William Douglas Sloane, New York City.

Children's Hospital, Columbus, $1,000 as a share of the sales in a department store of Columbus, March 20.

Carney Hospital, Boston, $5,000, by the will of Dr. Hasket Dirby, formerly of Boston, who died at Eden, Me.

Chestnut Hill Hospital, Philadelphia, $5,000; Children's Hospital, Philadelphia, $1,000, by the will of Edward Toland.

University of Pennsylvania Hospital, $10,000, to endow beds in memory of his daughter Mabel and sister-in-law Miss Johnson; Easton (Pa.) Hospital, to endow a bed in memory of Joannah Drennan, by the will of the late Rear Admiral Michael C. Drennan, U. S. Navy.

Framingham (Mass.) Hospital, $2,000; Home for Aged Men and Women, $1,000, by the will of Mrs. Mary Lewis, Framingham.

Henrietta Hospital, East St. Louis, $10,000, donation from Mrs. Lucy Beekin.

Presbyterian Hospital, Chicago, Easter collection in all Presbyterian churches in Chicago, about $10,000.

Medical Reserve Corps Camps of Instruction.—The Surgeon-General has issued a circular under date of March 29, to members of the Medical Reserve Corps, U. S. Army, on the inactive list, regarding camps of instruction to be held during the coming summer. These camps are to be located as follows: Fort D. A. Russell, Wyoming, May 30 to June 5; Fort Sam Houston, Texas, from June 7 to 12; Fort Oglethorpe, Georgia, June 7 to 12; Presidio of Monterey, California, June 7 to 12; Tobyhanna, Pennsylvania, June 28 to July 3, and Sparta, Wisconsin, July 12 to 17. At these camps it is proposed to provide a complete field hospital, ambulance company, regimental infirmary and such other equipments as may be necessary to officers for a thorough and practical course of instruction in the duties of medical officers in the field. As no funds are available for defraying their expenses in connection with these camps, officers who attend must do so at their own expense, which will include the cost of transportation to and from the camps, and in addition the cost of subsistence, which latter will be about $1 a day. Officers of the Medical Reserve Corps desiring to accompany these organizations should notify the Surgeon-General's office at once. Officers should state whether or not they desire to furnish their own mounts. If mounts cannot be furnished, ambulance transportation can be furnished to a limited number of officers.

FOREIGN

Winternitz' Eightieth Birthday.—The father of scientific hydrotherapy, as he is called, Prof. W. Winternitz of Vienna, received many greetings on his eightieth birthday, March 1.

The Langenbeck-Virchow Building at Berlin.—This new home for the medical and surgical societies of Berlin is just on the point of completion. The library is already being moved into the new quarters. By combining several scattered medical libraries, it starts with 113,000 volumes.

Prize Goes to Fibiger.—The M. Salomonsen prize of about $200 is awarded every fifth year at Copenhagen for some notable progress in the medical sciences. This year the prize was awarded to J. Fibiger for his work, "Animal-Parasite Cancer in Rat Stomach." A summary of it was published in The Journal, Oct. 17, 1914, p. 1432.

Appropriations for Scientific Research at Vienna.—The Academy of Sciences at Vienna has allowed 800 kronen (about $200) to Prof. H. Dexler of Prague to aid in continuing his studies on stimulation of the brain cortex in the horse. The sum of 600 kronen ($150) was awarded also to Dr. E. Pernkopf of Vienna to aid in his study of the development of the intestines and omentum.

Houses for the Physicians in the Earthquake Zone of Italy.—The Italian Red Cross has decided to construct a two-story permanent house for the commune physician (*medici condotti*) in the regions devastated by the earthquake. The Red Cross has appropriated about $24,000 for the purpose and is working with the Comitato Pro Case Abruzzo which is putting up small houses for the quake refugees.

Appropriations for Cancer Research in Germany.—The Prussian department of education has petitioned the legislature for a continuance of the appropriation of 25,000 marks (about $6,250), which for six years has been granted for cancer research, on condition that private subscriptions would double the amount. This has always been done, and the private subscriptions are already assured for 1915. The appropriation is devoted mainly to the cancer research work being done under Ehrlich's supervision.

Deaths in the Profession Abroad.—A. Birnbacher, professor of ophthalmology at the University of Graz, aged 66, an authority on glaucoma in particular, but best known, perhaps, by his operation for ptosis and for cataract and his method of illumination of the eye.——J. D. Pinero, professor of anatomy at the University of Buenos Aires and chief of the sanitary inspection service of the port and of the vaccine service, member of the national board of health and physician in chief at the hospital for men.——J. G. Rueda, presi-

dent of the board of health for the province of Cordoba, Argentina, governor, and member of the national senate, aged 53.——G. Resinelli, professor of obstetrics at the University of Florence, aged 50. He founded at Florence the Istituto di maternita per madri illegittime.——H. Apolant, a co-worker with Ehrlich at Frankfurt, aged 48.——Kreisarzt Filgenträger, of typhus contracted at the Langensalza camp of prisoners.——Otto Markus, assistant at the Würzburg medical clinic, was killed by a shell during the Argonne fighting. He leaves unfinished an important work on the histology of the ganglion cells of the vegetative nervous system. He had already published a number of works on neurology and psychiatry.

WAR NOTES

Austrian and Turkish Governments Ask for Medical Helpers.—The *Ugeskrift for Læger* announces that it has received an appeal from the Austrian Society for Combating Epidemics asking for laboratory workers, physicians and orderlies with special experience in fighting epidemics. The appeal states further that the Ottoman government is asking for a trained laboratory worker.

Restrictions as to Bread Making in Italy.—The *Policlinico* gives the official decree regulating the bakeries, to prevent waste of wheat flour. Only one kind of bread can be made for sale from wheat flour. It corresponds to the type of bread supplied to the army, *pane di munizione*. The loaf must not weigh over 500 gm. (not quite 16 ounces), and there must not be over 35 per cent. moisture within twelve hours of the baking.

Restrictions with Regard to Bread Making in Hungary.—The *Klinisch-therap. Wochenschrift* states that bakeries must add 50 per cent. cornmeal to wheat and rye flour used in making bread for sale. Where the supply of cornmeal is known to be inadequate, the minister of the interior may grant permission to use, instead, 25 per cent. potato flour with wheat or rye flour. The only exception is in baking what are known as "water rolls," *Wassersemmeln*, but these can be baked only once a day. Failure to comply with these regulations entails a penalty of imprisonment up to two months or a fine up to $150.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending April 3, 1915, lists the following contributions:

Dr. John Lewis Stevens, Mansfield, Ohio	$ 5.00
Hoquiam Surgical Club, Hoquiam, Wash.	10.00
Dr. J. D. Griffith, Kansas City, Mo.	5.00
Dr. Philip F. Williams, Philadelphia, Pa.	5.00
Visiting Nurse Association of Chicago, Chicago, Ill.	12.00
Dr. Burnley Lankford, Norfolk, Va.	5.00
Dr. Irene M. Morse, Clinton, Mass.	3.00
The Homochitto Valley Medical Society, Natchez, Miss.	14.25
Dr. T. L. Macdonald, Washington, D. C.	10.00
The Yankton District Medical Society, Yankton, S. Dak.	50.00
Dr. James D. Voorhees, New York, N. Y.	25.00
Receipts for week ending April 3	$ 144.25
Previously reported receipts	5,752.25
Total receipts	$ 5,896.50
Previously reported disbursements:	
1,625 standard boxes of food @ $2.20	$3,575.00
945 standard boxes of food @ 2.30	2,173.50
Disbursements for the week ending April 3:	
64 standard boxes of food @ $2.30	$ 147.20
Total disbursements	$ 5,895.70
Balance	$ .80

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Austria and Hungary Forbid the Offering of Liquor to Soldiers on the Way to or from the Front.—The authorities have issued a decree forbidding the sale or gift of alcohol to troops on trains. The officer in command of the troops must see to it that within five hours of entraining no alcohol shall reach them. Alcoholic drinks shall be given to the sick or exhausted on the trains only when the medical officer regards it as indispensable. The eating houses and restaurants at the stations must have ready for the troops, besides mineral waters and other non-alcoholic drinks, soups, hot and cold boiled milk, tea, coffee and lemonade. Circulars have been given to all the soldiers urging abstention from alcohol, "as it makes men sluggish and incapable of marching, interferes with good shooting and renders one more susceptible to infectious diseases." The Austrian authorities have also ordered that no more barley shall be made into malt, and all supplies of barley on hand at the breweries must be declared. Permission is also given local authorities to utilize the drying facilities of the breweries to hasten the drying of new corn so that it can be ground before the usual time.

LONDON LETTER

LONDON, March 12, 1915.

The War

THE OUTBREAK OF CEREBROSPINAL FEVER

The outbreaks of cerebrospinal fever both among the civil population and the military are causing some anxiety. The health authorities have issued a circular to physicians offering to make a bacteriologic diagnosis in suspected cases. The cerebrospinal fluid will be examined for the organism, and the services of a medical officer will be available, if requested, for obtaining the fluid by lumbar puncture. Dr. Arthur Newsholme, chief health officer to the Local Government Board, in a memorandum issued to the health officers, recommends that "in the presence of cerebrospinal fever, the nearest approach to open-air life should be aimed at for all contacts." He adds: "In view of the known association of cerebrospinal fever with overcrowding, insufficient ventilation and uncleanliness, the avoidance of these conditions becomes a matter of prime importance. This is especially true where large numbers of persons are brought together under one roof."

MEDICAL SOCIETY WORK AND THE WAR

A great number of the consultants of the country are engaged in military work both in the hospitals at home and in France. As the work of the medical societies is almost entirely done by this class, there is a great shortage in the proceedings. Great difficulty is experienced in obtaining papers and cases for the meetings. At the largest of all the societies, the Royal Society of Medicine, some of the sections have been unable to hold meetings in consequence of lack of material. The result is evident in the shrunken form in which the proceedings are published.

"BACK TO LISTER"

At the Royal Institution, Sir Rickman J. Godlee (Lister's nephew) delivered a lecture on "Back to Lister." He said that Lister's followers had feared that the war would bring out in relief the weak points of those who had departed from his methods and adopted the so-called "aseptic" method. At the outset of hostilities the reports from the front of almost universal sepsis made them fear that their prognostications were true and that the abandonment of antiseptics was at least in part accountable. It appeared, however, that antiseptics were very largely employed, though so far with most disappointing results. The fact must not be overlooked that military surgery was exceptional, and that this war in particular was being fought under most unusual circumstances, the trenches being dug and monster shells exploding in highly cultivated soil. Were they to hold up their hands in despair and say it was useless to attempt to disinfect any wounds to which the organisms of tetanus and gas gangrene might have gained access? By no means; all Lister's work cried out against such a conclusion. He still thought Lister's original method of purification by means of undiluted phenol (carbolic acid) was the one most likely to be useful in the rough-and-tumble practice of the battlefield. Although this treatment caused a certain amount of superficial sloughing, Lister obtained strikingly good results. Sir Rickman Godlee considered that the comparison made between aseptic and antiseptic treatment was misleading, because most of the advocates of aseptic surgery use chemical antiseptics for one purpose and another, while all employed heat, the most powerful antiseptic. The great difference between the aseptic and the antiseptic surgeon is that the former requires an amount of paraphernalia which puts his procedures almost beyond the reach of any except hospital surgeons and quite beyond that of surgeons with the fighting army. He read a letter from Sir Anthony Bowlby (consulting surgeon to the forces) showing that aseptic practice will often be useless: "In this trench warfare, if a man is hit, he often falls into filthy mud and water, which may be 3 feet deep or more. The trench is only 2½ feet wide. It is night, you can only grope about in the dark and can do no dressing of any kind, for you can't even get any clothes off in the dark, and in so cramped a space, and you must try to get the man away to a 'dressing station' half a mile distant, and thence to a field ambulance. If it is daylight, you can't get the man out of the trench at all, and he may have to be kept there for many hours, because he would certainly be killed if he was got out of the trench. And the water in the trenches is hopelessly polluted and soaks his clothes and his wound. Large lacerated wounds, and

especially bad bone smashes, are so contaminated that it can never be possible to render them aseptic." Sir Rickman Godlee concluded by saying, "The only way to stop sepsis in war is to stop war altogether."

PARIS LETTER

Paris, March 18, 1915.

The War

Improvements in the Military Medical Service

In a previous letter (The Journal, Feb. 6, 1915, p. 524) it was stated that the minister of war had appointed a commission to recommend improvements in the military medical service in the national territory and in the armies. This commission, of which Professor Landouzy, dean of the Faculté de médecine de Paris, Dr. Roux, director of the Pasteur Institute, Dr. Vaillard, medical inspector-general of the military medical service and Dr. Hartmann, professor of clinical surgery at the Faculté de médecine de Paris, among others, are members, has just finished its labors. Among its most important recommendations may be mentioned the following: increase in the number of automobiles for the transportation of the wounded up to the number of sixty for each army corps; creation in each army of surgical sanitary formations for the front, one for each army corps as a minimum for the urgent operative treatment of those seriously wounded, the placing of the formations to be determined according to need by the commanders at the suggestion of the army physicians; removal of the wounded within the army zone in normal times by daily collecting trains and during intensive activity by sanitary trains sent to the front and by daily supply trains. The latter trains, which are to be employed only to aid an intensive evacuation in the army zone, should always be accompanied by a medical and nursing staff and kept under definite hygienic conditions. The physicians and surgeons of the reserve and of the territorial army are to be allotted to military posts in accordance with their professional competence and scientific attainments, the different specialties being placed in the formations where they are necessary.

The commission recommends the creation or adoption, in each army corps region, of surgical formations reserved for those seriously wounded in the zone of the territory of the large centers of specialties, with competent physicians and surgeons at the head and the commissioning of consulting surgeons in each army corps region to inspect the sanitary formations.

Other recommendations are: that a surgeon dentist be detailed to each regiment and a dental automobile service organized in an army corps; that the instructions with regard to compulsory antityphoid vaccination be strictly applied; that special hospital accommodations be provided for typhus patients; that medicaments and dressings be regularly supplied; that the administrative working of the sanitary formations be simplified; that the wearing of the uniform of Red Cross nurses be regulated, etc.

Treatment of Frozen Feet

The treatment of frozen feet, so frequent during the present campaign, continues to occupy the attention of surgeons. The majority believe that it is better to wait before operating. Notwithstanding, Dr. Quénu, professor of clinical surgery at the Faculté de médecine de Paris, advises against awaiting spontaneous sloughing of the dead part in cases of freezing with mortification. When the line of demarcation has appeared amputation may be made 1 cm. above and the wound sewed up. This avoids final neuritis. On the other hand, Dr. Walther, surgeon of the hospitals of Paris and agrégé at the Faculté de médecine, believes that it is often the most economical method to delay operation until cicatrization has accomplished as much repair as it can, thus necessitating only a slight trimming of the edges whereas an early operation would have required the sacrifice of a whole limb or segment of a limb. This is likewise the opinion of Dr. P. Thiéry, surgeon of the hospitals and agrégé at the Faculté de médecine de Paris and Dr. Arrou, surgeon of the hospitals of Paris, who declared that operation should not be performed too soon. A toe may regain its color and heat if one waits. A gangrenous spot may contract and slough off, leaving a very shallow excavation. A limb believed to be compromised or even lost may resume heat and life at the end of several days. Operation, therefore, should be performed only very late and perhaps not at all. As an excellent therapeutic and prophylactic measure, Thiéry recommends the use of footbaths with a cold aqueous 1 2 per cent. solution of picric acid.

Dr. J. Glover, physician of the hospitals of Paris, has called the attention of the Académie de médecine to the fact that in all cases of freezing, vasomotor troubles are observed in various degrees not only in the feet but also in the hands and at the level of the face, and these are accompanied by oliguria, hypothermia and a slight retardation of metabolism. These phenomena may be much alleviated if, during the local treatment, each day from two to four or five drops of 0.1 per cent. solution of crystallized digitalin are administered as soon as possible. The skin of the extremities is then better irrigated by a more normal capillary circulation and the tissues are more easily repaired.

Individual Iodin Dressing

Dr. Jeanbrau, agrégé professor of surgery at the Faculté de médecine de Montpellier, showed at the Société de chirurgie de Paris an individual dressing devised by Fonzes-Diacon and Astruc of Montpellier. In consists of two little tampon compresses, one for the orifice of entry, the other for the orifice of exit of the wound, formed of cotton wrapped in a gauze compress. The piece of cotton has been soaked in a solution of potassium iodate and potassium iodid in excess and the gauze which covers it has been impregnated with a feebly acid solution. On contact with the blood issuing from the wounds, iodin is set free and it remains dissolved, in the excess of potassium iodid. Jeanbrau has tried the new dressing on about twenty men who have been wounded and operated on. None of them presented any erythema or experienced the least disagreeable sensation at the level of the wound.

Urinary Incontinence in Combatants

At a recent session of the Académie de médecine, Dr. F. Legueu, clinical professor of diseases of the urinary passages at the Faculté de médecine de Paris, read an interesting paper on this subject. Several varieties of incontinence must be distinguished: 1. There are incontinences produced by an organic lesion of the urinary organs, most frequently by a stricture of the urethra aggravated in the course of the campaign. 2. The greater number of incontinences are functional and result from psychic trouble. The nervous disturbance contracted during war in some cases produces paralysis or excitation of the bladder and both of these troubles manifest themselves by incontinence. When there is retention following emotion or a wound near to but not directly affecting the urinary organs, incontinence is caused by engorgement. When there is excitation pollakiuria results with incontinence during the night. Legueu has seen soldiers slightly affected with these troubles discharged from the army. He believes that soldiers of this class ought to be kept in the service and can even be sent to the front.

New Automobiles for the Transportation of the Wounded

The minister of war has just passed in review the first automobile column of Russian ambulances built for service at the front and offered to the French army by a Russian committee under the patronage of the Empress of Russia. These new automobiles, which can carry four wounded men each in a recumbent position and eight seated, present several important advantages over those at present in use. The carriages are light, admirably hung, the chassis high from the ground so that the automobiles can pass across fields or along rutted roads without the frames or axles striking. They can also easily descend steep slopes. They are inexpensive; chassis and ambulance body together cost about 3,800 francs ($740). Similar columns of automobile ambulances offered by Russia to France will soon be placed at the disposition of the minister of war. Great Britain has also recently presented France with thirty-five automobile ambulances. Thus progressively the transportation of the wounded, which originally was made only by vehicles drawn by horses, is more and more done by automobiles in conformity with the desire of the commission of the health service.

Personal

The minister of war has awarded a gold medal of honor (that of epidemics) to Mrs. Clara Muriel Kipling, nurse at the American hospital at Paris installed at the lycée Pasteur at Neuilly-sur-Seine.

The Problem of Absinthe

At a recent session of the Société de thérapeutique, Dr. Chevalier of Paris advocated an original measure intended to settle definitely the question of the disposal of the stocks of absinthe while completely taking care of all the financial

complications of the question. Chevalier proposes that the government buy and have distilled for its own use the stock of manufactured absinthe. In view of the deficits in the present manufacture of alcohol, the need for procuring it and the high price of the product, the transformation of absinthe to 90 degrees alcohol, so far from being a loss to the government, would reimburse the distillers while definitely removing the absinthe from the field of difficulties.

BERLIN LETTER

BERLIN, March 9, 1915.

The War

ATTENDANCE AT THE UNIVERSITIES

That we shall have no lack of human material in the near future is indicated by the record of attendance at the German university. At the twenty-two universities of the empire, there were 52,500 students enrolled as compared with 61,200 last summer and 59,600 in the winter semester of the previous year. Of the students, 48,500 were men and 4,000 women. From these figures we must subtract those students who are enrolled at the universities but are on leave of absence for military reasons. These amount to 30,000 men and 300 women. To these must be added the students who entered military service in the course of the winter whose number may amount to about 8,000 so that altogether from 36,000 to 37,000 German students are in the field in military training or in the military medical service. Of the students of the technical high schools, about 9,000 or from 75 to 80 per cent., have been drawn into the service of the empire.

INFLUENCE OF THE WAR ON THE BIRTH RATE

Fehlinger, the political economist, lately published some interesting discussions. It is well known that after war the birth rate declines but rises again in the following years above the position which it occupied before the war. The frequency of birth, according to Fehlinger, has been considered as an expression of the adaptation of the human race to the chronological and local conditions of life. As a rule, in thickly populated districts the birth rate is lower than in thinly populated, and where the danger to life is great, the frequency of birth is also great. As war was formerly with most peoples the most serious danger to life, there was always among its results a tendency to a high birth rate. This tendency is particularly required by the fact that many families with a low natural fertility and correspondingly small number of children are brought to extinction by war. But in families fruitful in children, the prospect that all the male progeny will be killed in war is very slight, for there prevail among the sons marked difference in age, and therefore all are not liable to service, so that a considerable number of the progeny from families with natural fertility is preserved. A selection goes hand in hand with war by which the preservation of fruitful families is favored, and therewith there is naturally an increase of the birth rate, as numerous families poor in children are extinguished by nature. The great fertility of the races of man among whom war and strife are almost continuous is referred to such a selection. An example is shown by the marked fertility which the negroes who were imported into North America showed in the first few generations. Also high fertility prevailed in early times among the Indians in the southwest of the United States, who were formerly very warlike.

Another factor which aids in the increase of the birth rate after war is the weakening of competition through the removal of the competing elements. A victorious war causes the economic advance of a people by which also its fertility is increased. Frequently also, as the result of the increased price of food and the deterioration of nutrition resulting from a war, there occurs a selection such that the weak members of a community are subjected to a much greater mortality than the strong. As a result there remains chiefly people fitted to live who are also fitted for reproduction to a greater degree. As unfavorable conditions for the birth rate after a war, the following should be considered: An increase in the excess of females by which a greater percentage of marriageable females remain unmarried. Also the circumstance that the weaker men physically are preserved in full numbers or slightly reduced, while a large part of the stronger men perish. Opposed to this, however, should be noted that it is still very doubtful whether a powerful physical constitution and a great capability of reproduction are associated. In connection with these considerations, Fehlinger stated that the year 1914 in Berlin had closed with a birth rate which was 3,500 less than that of the preceding year. The five years from 1909 to 1913 produced 45,960, 44,188, 43,201, 42,581, 40,832 living births. The year 1914, on the other hand, showed only about 37,300. The figures for 1914 are a temporary estimate, but it might be increased at the most, on account of delayed reports, by a few dozen. The mortality increased in 1914 by about 1,600. For 1914 a current estimate gives 29,650 births without stillbirths. The excess births over deaths for the years 1909-1913 amounted to 14,116, 14,036, 10,894, 12,600 and 12,767, but for 1914 only about 7,650. In 1914, the excess of births was about 5,100 less than for 1913, that is, about 40 per cent.

THE EXCHANGE OF GERMAN AND FRENCH INVALID PRISONERS OF WAR

The exchange of prisoners of war, who are no longer fit for military service on account of their severe wounds, has been carried out both with the English and the French. As is well known, the pope has expressly favored this exchange, but as I am authentically informed, already before his announcement, the Prussian war department had taken up this subject and made proposals to the governments of our enemy. For exchange with France, 800 German and 1,800 French severely wounded have been provided for. The small number of Germans corresponds to the smaller number of German prisoners in general. It is strange that the French government to date has not been willing to exchange wounded officers and noncommissioned officers. The medical supervision of the wounded who are exchanged rests, on our side, in the hands of Professor Goldscheider who, in the army, has the rank of *Generalarzt*, and of the superior staff surgeons, Professors Rumpel and Schwiening.

REDUCTION OF THE FLOUR RATION

In order to make the supplies of grain, under all circumstances, last until the next harvest, the daily ration of flour has now been reduced from 225 to 200 gm. per capita of the population. That such an average amount of flour is sufficient, needs no special evidence from the medical standpoint. A smaller ration is provided for infants and other small children. The well-to-do classes of the population depend less on the use of bread and can provide themselves with dearer foods, so it is assumed that they will not use the full amount of flour and bread ration supplied to them, but will return a part of it to the authorities that it may be used for the poorer classes.

Naturally, in the early period, much complaint was made against the army bread inasmuch as the more thorough grinding of the grains caused a greater percentage of bran in the flour, and the wheat flour must be mixed with a considerable amount of rye, and the rye bread must contain potatoes in substance or as potato flour. How far these complaints are justified has been tested by a meeting of competent specialists called by Professor Schwalbe, including hospital physicians and other internists. In a thorough debate, in which the physiologists Zuntz and Flügge and the internists Ewald, Rosenheim, G. Klemperer, Adolf Schmidt, Boas and others took part, it was established that there are certain patients who are unable to tolerate the war bread, but that their number is relatively small. Chiefly this concerns patients with pathologic conditions of secretion of the gastric juice. The majority of the persons who complain come from the class of neurasthenics.

It is very important for the bread to be well baked and to be carefully chewed. For the necessary exceptions to the official regulations, the stations for distributing flour will supply pure wheat flour for baking purposes on a physician's prescription. These experiences are also of general interest for the use of wheat and rye bread in the diet of the sick.

Vaccination Against Typhoid

With reference to the importance of the reactions which occur after prophylactic typhoid inoculation, Dr. Müller of Berlin made a report to a meeting of army surgeons of the garrison of Ingolstadt. Altogether 3,010 typhoid vaccinations have been made in that hospital; 1,183 were first inoculations; 1,121, second, and 706, third. Thirty in the first group were kept under close supervision for a period of three weeks, including twelve physicians, nurses and members of the ambulance corps, who made thorough reports of the subjective symptoms. In some of them the number of leukocytes was counted every morning before breakfast. This gave the following results:

	Average of 9 Cases: Leukocytes in 1 c.c.	Average of 4 Cases
Before vaccination	4,260	5,000
First day after inoculation	6,170	6,150
Second day after inoculation	4,780	3,910

A temporary leukocytosis is thus produced by the injection of the typhoid vaccine. This might be utilized as a differential diagnostic point against a genuine typhoid infection. In 873 cases a very careful study of the local and general reaction occurring after the vaccination was undertaken. Redness at the point of injection on the second day of the size of a 3 to 5 mark piece (approximately the size of a silver dollar) was regarded as a mild local reaction; redness the size of the palm of the hand, as a severe one. Hemorrhagic effusion or inflamed lymphatics running to the other side of the chest or swelling of the local lymph glands were never observed.

The local reactions disappeared at the latest on the fourth day with the exception of a slight tenderness at the point of injection. As slight general reactions are included headache, lassitude, disturbed sleep and loss of appetite for the first day or two. As severe general reactions, rise of temperature to 38 C., or 100.4 F. (only in one case the temperature reached, the first evening, 38.9 C. [102 F.] but six hours after the injection it had fallen to 38.3 C. [100.9 F.], and on the next morning was normal), suddenly appearing diarrhea with severe pain (one case) and a chill occurring about two hours after the injection (thirteen cases). The general symptoms had regularly disappeared on the third day.

	Number of Vaccinations	Local Reaction Percentage		General Reaction Percentage	
		Slight	Severe	Slight	Severe
1. Vaccination	409	10	9	2	0.8
2. Vaccination	331	6	14	0.6	3.5
3. Vaccination	132	0	25	4.5	0.7

None of the cases which were generally observed for weeks and sometimes for months showed any later symptoms. In particular it was worth noticing that very frequently in the first few days after the injection, pains occurred in cicatrized wounds or callus, in thickenings in the pleural cavity, and at the site of contusions or other injury. In pulmonary tuberculosis suspects, the general condition was relatively severely disturbed during the first two days, as a rule. In one such case pain developed suddenly after the injection, appearing at the seat of a left-sided apical affection which occurred a year before and in which pain had not been previously observed. The indication appears clear to exclude from the inoculation all patients showing an increased temperature until the acute pathologic process has ceased.

The antityphoid vaccination resulted in a noticeable disturbance of the general condition in the first two days only in 5 per cent. of the cases; delayed reactions did not occur. Typhoid prophylactic inoculation is to be regarded as a procedure that has no disturbing effect on the health, and in this respect is distinctly superior to vaccination against smallpox. No objection can be urged against compulsory protective inoculation in case of a threatened epidemic of typhoid.

Marriages

GEORGE THOMAS TOOTELL, M.D., Changteh, China, formerly of Chicago, to Miss Anna Eleanore Kidder of Chenchow, China, formerly of Knoxville, Tenn., at Canton, China, January 13.

ALFRED M. ELWELL, M.D., Camden, N. J., to Miss Helen Robbins Whitaker of Bridgeton, N. J., March 20.

ARCHIBALD DUNCAN MCALPINE, M.D., Detroit, to Miss Lucile Cornell of Lansing, Mich., March 25.

THOMAS S. LORTON, M.D., Pana, Ill., to Miss Mary Oughton of Belleville, Ill., at Hillsboro, Mo., Jan. 12.

HENRY WALDO COE, M.D., Portland, Ore., to Miss Elsie Ara Waggoner of Los Angeles, March 25.

EMIL HENRY BURGHER, M.D., St. Louis, to Mrs. Daphine Sharp, at Edwardsville, Ill., March 19.

CHARLES ROGER ABBOTT, M.D., to Miss Gladys I. Jeffery, both of Clinton, Mass., March 24.

WILLIAM RILEY BROWN, M.D., to Miss Thora Williams, both of Ogden, Utah, March 24.

GEORGE FLORIAN BOYER, M.D., Toronto, Ont., to Miss Janet Anderson of Chicago, April 5.

NOEL C. WOMACK, M.D., to Miss Mary Lane, both of Jackson, Miss., March 24.

Deaths

Edward Sprague Peck, M.D. University of Vermont, Burlington, 1868; a member of the Medical Society of the State of New York and New York Academy of Medicine; consulting oculist to the New York City Hospital; oculist to St. Elizabeth's Hospital and ophthalmologist to the Montefiore Home and Hospital and the Post-Graduate Hospital; formerly a major in the Serbian army with service during the war with Turkey; for more than twenty years a member of the editorial staff of the *Medical Record* and a well-known writer on the subjects connected with his specialty; died at his home in New York City, March 22, aged 67.

Claus J. Siemens, M.D. University of Goetingen, Germany, 1853; said to have been the oldest practitioner of St. Joseph, Mo.; assistant surgeon of the Sixty-Ninth and Ninth, and surgeon of the Fiftieth Pennsylvania Volunteer Infantry during the Civil War; one of the organizers of the St. Joseph Medical Society and an honorary member of the St. Joseph-Buchanan-Andrew County Medical Society; president and treasurer for a time for the German-English School Board of St. Joseph; died at the home of his son-in-law in that city, March 22, aged 86.

George H. Stover, M.D. Denver College of Medicine, 1893; of Denver, Colo.; a Fellow of the American Medical Association; formerly lecturer on electrotherapeutics and radiology in the Denver and Gross College of Medicine, and later professor of roentgenology in the University of Colorado, Boulder; died March 25 in a hotel in Baltimore, where he had been under treatment for burns due to the Roentgen rays, aged 44.

Philip Michael Wood, M.D. Bellevue Hospital Medical College, 1876; a member of the Medical Society of the State of New York; visiting surgeon to and for many years president of St. Mary's Hospital, Jamaica, N. Y.; president of the board of sewer commissioners of Jamaica; one of the organizers of the Bank of Long Island and Jamaica Savings Bank; died at his home in Jamaica, March 27, from nephritis, aged 59.

John Alsdorf, M.D. College of Physicians and Surgeons in the City of New York, 1880; formerly consulting physician to the Women's Infirmary and Metropolitan Dispensary, New York City, and medical director of the Guarantee Medical Attendance Association; district physician for the New York Lying-In Asylum; died at his home in New York City, March 25, from pneumonia, aged 72.

Alexander Hamilton Scott, M.D. University of Michigan, Ann Arbor, 1867; a Fellow of the American Medical Association; of St. Joseph, Mich.; a veteran of the Civil War in which he served as hospital steward; trustee of the village of St. Joseph for three terms and mayor of the city in 1890 and 1891; died in Brunswick, Ga., March 19, from heart disease, aged 74.

R. Sydney Cauthen, M.D. Baltimore (Md.) Medical College, 1902; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat of Charlotte, N. C.; died at his home in Charlotte, March 24, from heart disease, aged 43. In honor of Dr. Cauthen, the Mecklenberg County Medical Society attended the funeral in a body.

Oliver Cotton Smith, M.D. Long Island College Hospital, Brooklyn, 1883; a Fellow of the American Medical Association and president of the Connecticut Medical Society; a member of the Association of Military Surgeons of the United States and surgeon-general of Connecticut in 1905; died at his home in Hartford, recently, aged 55.

Thaddeus O. Bannister, M.D. New York University, New York City, 1856; acting assistant surgeon in the Army during the Civil War; for thirty years a member of the school board and for fifteen years president or a member of the board of trustees of the village of Odell, Ill.; died at his home in that place, January 18, aged 81.

Amos Paterson Webber, M.D. Bellevue Hospital Medical College, 1883; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; a member of the staff of St. Luke's Hospital, New Bedford, Mass.; died at his home in New Bedford, Mass., March 20, aged 55.

Enoch A. Emerson, M.D. Detroit College of Medicine and Surgery, 1886; of Spring Arbor, Mich.; a member of the Michigan State Medical Society; was found dead in his

home, March 25, from the effects of a gunshot wound of the breast, believed to have been self-inflicted with suicidal intent, aged 56.

Henry Jerome Ruyle, M.D. Kentucky School of Medicine, Louisville, 1893; consulting physician to the Frisco System at Springfield, Mo.; died in St. John's Hospital, Springfield, March 22, from the effects of carbolic acid, self-administered, it is believed, with suicidal intent, while of unsound mind, aged 44.

Stephen Benjamin Munn, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1882; Bennett Medical College, Chicago, 1888; a practitioner of Waterbury, Conn., since 1865, and health officer in 1881 and 1882; died at his home in that city, March 21, from cerebral hemorrhage, aged 87.

Angus A. McLellan, M.D. McGill University, Montreal, 1889; of Summerside, P. E. I.; health officer of that town and one of the founders of the Summerside Hospital; fell from a car in Montreal, March 17, fracturing his skull and died in the Western Hospital, Montreal, March 20, aged 54.

Henry Walbank Jones, M.D. Rush Medical College, 1876; of Houghton, Mich.; a member of the first board of control of the state hospital. Newberry, Mich.; for many years moderator of the Houghton school district; died at the home of his daughter in Short Hills, N. J., March 18, aged 51.

Z. T. Knight, M.D. Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Ia., 1907; a member of the Missouri State Medical Association and a member of the staff of the Fulton (Mo.) State Hospital; died at Fulton, March 21, after an operation for appendicitis, aged 34.

Alva Richards, M.D. Cincinnati College of Medicine and Surgery, 1862; for more than fifty years a practitioner of New Lexington, Ohio; assistant surgeon of volunteers during the Civil War; died at his home in New Lexington, March 24, from cerebral hemorrhage, aged 72.

William B. Officer, M.D. St. Louis College of Physicians and Surgeons, 1893; a Fellow of the American Medical Association; and a well-known practitioner of Dallas and Falls City, Ore.; died at his home in Falls City, March 15, from pneumonia.

Edmund Charles Dollard, M.D. Jefferson Medical College, 1899; a Fellow of the American Medical Association; of Neenah and Menasha, Wis.; died in a hospital in Neenah, March 26, four days after an operation for appendicitis, aged 41.

J. Aldo Rink, M.D. Denver and Gross College of Medicine, Denver, 1904; a Fellow of the American Medical Association and a member of the staff of the St. Anthony's Hospital, Denver; died at his home in that city, March 19, aged 40.

Theodore T. Tate, M.D. Pennsylvania Medical College, Gettysburg, 1855; assistant surgeon of the Third and Seventeenth Pennsylvania Volunteer Cavalry during the Civil War; died at this home in Gettysburg, Pa., March 20, aged 84.

George S. Chalmers, M.D. Physio-Medical Institute, Cincinnati, 1878; formerly a member of the Illinois State Medical Society and for twenty years coroner of Knox County, Ill.; died at his home in Galesburg, March 18, aged 70.

Alexander Anthony Dame, M.D. Queen's University, Kingston, Ont., 1886; of Toronto; a specialist on diseases of the eye, ear, nose and throat; died suddenly in Toronto, March 23, from cerebral hemorrhage, aged 68.

J. J. Elmes. L.R.C.P. and L.R.C.S., Edinburgh, 1892; L.F.P.S., Glasgow, 1892; surgeon on the Donaldson Line between Glasgow and the United States; died on board the steamer *Athenia*, March 4, from heart disease.

Edwin Crocker, M.D. Albany (N. Y.) Medical College, 1868; a member of the Medical Society of the State of New York; and a practitioner and druggist of Narrowsburg, N. Y.; died at his home, March 26, aged 75.

William H. Aikin, M.D. Pulte Medical College, Cincinnati, 1884; for thirty-one years a practitioner of Felicity, Ohio, and for two terms auditor of Clermont County; died at his home in Felicity, March 21, aged 59.

William Julius Pasmore, M.D. University of Toronto, Ont., 1865; for the last fourteen years a practitioner and druggist of Deseronto, Ont.; died in Wellesley Hospital, Toronto, March 15, from angina pectoris.

Charles Otto Straub, M.D. Rush Medical College, 1895; died at his home in North Minneapolis, Minn., March 21, from pneumonia, aged 40.

Erastus M. Eisenbeiss, M.D. Medical College of Indiana, Indianapolis, 1888; of Indianapolis; a specialist in roentgenology and radiotherapy; died in Indianapolis, March 30, from the effects of Roentgen-ray burns.

John Milton Pilsbury, M.D. Jefferson Medical College, 1865; surgeon of U. S. Volunteers during the Civil War and for forty years a practitioner of Chicago; died at his home in that city, March 30, aged 77.

Frank H. Honberger, M.D. Hahnemann Medical College, Chicago, 1890; of Chicago; professor of obstetrics in his alma mater; died in Hahnemann Hospital, Chicago, March 29, from heart block, aged 58.

Francis M. Robinson, M.D. Willamette University, Salem, Ore., 1885; formerly a member of the Oregon State Medical Association; died at his home in Beaverton, Ore., March 22, from heart disease, aged 67.

William Ralph Bell, M.D. University of Vermont, Burlington, 1869; University of Bishop's College, Montreal, 1882; for more than half a century a resident of Ottawa, Ont.; died at his home, March 23.

W. J. Heacker (license, Tennessee, 1889), a practitioner since 1864; surgeon in the Confederate service during the Civil War; died at his home in Tate, Tenn., March 19, aged 82.

Robert Lee Swanson, M.D. Atlanta (Ga.) Medical College, 1914; formerly an intern at the Grady Hospital, Atlanta; died at the home of his mother in Fairburn, Ga., March 16, aged 25.

William Bower Gillespie, M.D. Medical College of Indiana, Indianapolis, 1881; a veteran of the Civil War; died at his home in Indianapolis, March 24, from pneumonia, aged 78.

Thomas Sawyer Turner, M.D. New York Homeopathic Medical College, New York City, 1879; died at his home in Binghamton, N. Y., March 19, from septic meningitis, aged 66.

Frank H. Lawrence, M.D. Eclectic Medical Institute, Cincinnati, 1880; of Kanona, N. Y.; for four years postmaster of that place; died in the Willard State Hospital, March 23, aged 56.

Henderson F. Hornaday, M.D. Central College of Physicians and Surgeons, Indianapolis, 1883; of Indianapolis; died in the Methodist Hospital in that city, recently, aged 66.

John R. Huss, M.D. Pulte Medical College, Cincinnati, 1879; of Dodge City, Kan.; died at St. Luke's Hospital, Denver, March 19, after a surgical operation, aged 60.

Roy A. Vaughan, M.D. Medical College of Virginia, Richmond, 1909; of Henderson, N. C.; died at the home of his father in Durham, N. C., January 22, aged 27.

John A. Sapp, M.D. Cleveland University of Medicine and Surgery, 1869; a veteran of the Civil War; died at his home in Salineville, Ohio, March 18, aged 70.

Erwin P. Howard, M.D. Bennett Medical College, Chicago, 1881; a practitioner of Richland, Ore.; died in Portland, Ore., about March 18, aged 62.

Walter L. Lamaster, M.D. University of Louisville, Ky., 1883; died at his home in Ashland, Mo., March 23, from pneumonia, aged 56.

Caroline Morrosco Von Langau, M.D. California Eclectic Medical College, Los Angeles, 1888; died at her home in Chicago, March 17.

Charles John Rattray, M.D. McGill University, Montreal, 1871; of North Lansingburg, Troy, N. Y.; died in Troy, March 18, aged 68.

Wilson Mellor Sprague, M.D. Starling Medical College, Columbus, Ohio, 1898; died at his home in Byesville, Ohio, March 15, aged 39.

Daniel Joseph O'Shea (license, Massachusetts, 1899); died at his home in East Boston, Mass., March 23, from pneumonia, aged 38.

John Maxwell True, M.D. Sioux City (Iowa) College of Medicine, 1897; died at his home in Oskaloosa, Ia., March 16, aged 69.

Tristram Rogers, M.D. Worcester (Mass.) Medical College, 1855; died at his home in Plymouth, N. H., about March 19, aged 81.

Samuel S. Knight, M.D. Atlanta (Ga.) Medical College, 1858; died at his home in Fountain Inn, S. C., March 23, aged 77.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Previous instalments of abstracts appeared in THE JOURNAL, Nov. 14 and 21, Dec. 12, 1914, Jan. 2 and 30, Feb. 20 and March 20, 1915.

Hagee's Cordial of the Extract of Cod Liver Oil Compound

This is one of the "oilless" cod liver cordials. Like other manufacturers of such extracts, the Katharmon Chemical Company, St. Louis, which owns Hagee's Cordial, attempts to trade on the reputation long enjoyed by cod liver oil as a promoter of growth and nutrition. The following is the statement of composition furnished by the company:

"Each fluid ounce of Hagee's Cordial of the extract of Cod Liver Oil Compound represents the extract obtainable from ½ fluid ounce of Cod Liver Oil (the fatty portion being eliminated), 6 grs. Calcium Hypophosphite, 3 grs. Sodium Hypophosphite, ½ gr. Salicylic Acid (made from Oil Wintergreen), with Glycerin and Aromatics."

And here are some of the therapeutic claims:

"Tonic, Stimulant, Alterative, Reconstructive, Nutritive and Digestive."

"Useful in phthisis pulmonalis, scrofula and all chronic pectoral complaints, coughs, colds, brain exhaustion, nervous debility, palsy, chronic cutaneous eruptions and impaired digestion."

Of course, these absurd claims hark back to the time of the prevalence of the now discarded theory that the valuable properties of cod liver oil reside, not in the fat, but in certain nitrogenous, alkaloid-like constituents present in infinitesimal amounts. Further "playing up" this theory:

"The prescriber may know that in our preparation he is getting, in easily assimilable and palatable form, the very properties that make cod liver oil the best of reconstructives.

"When you prescribe cod liver oil you are after the active principles—why not give the active principles themselves."

Proprietary manufacturers usually ignore scientific investigations which establish facts adverse to proprietary claims; but the same proprietary manufacturers are quick to seize on any theory that can be twisted into support of their interests. Thus, recent investigations having shown that cod liver oil, like butter and egg yolk, possesses certain growth-promoting properties not found in some other fats, the promoters of Hagee's Cordial claim these properties of cod liver oil for their extract. They assert:

"Recent Chemical Investigations of Cod Liver Oil show that the active principles contain the nutritive qualities attributed to the whole oil."

The Council has previously expressed the opinion[1] that the preponderance of evidence indicates that whatever therapeutic value cod liver oil may have depends chiefly, if not entirely, on its fat (oil). There never was any evidence or scientific authority for the theory that the therapeutic value of cod liver oil was independent of its fat content. The fact that the fat is the growth-promoting element has already been shown, and J. P. Street, chemist for the Connecticut Agricultural Experiment Station (THE JOURNAL A. M. A., Feb. 20, 1915, p. 638), in a series of experiments on a number of the so-called extracts of cod liver or cod liver oil (including Hagee's Cordial) has conclusively demonstrated that the growth-promoting properties of the oil are not to be found in the extracts. Street placed rats on a ration not sufficient to maintain normal nutrition and growth for an extended period. After the rats had been on this ration for some time and a failure to maintain weight was indicated, an amount of dealcoholized Hagee's Cordial was substituted for a portion of the lard contained in the ration. Later Hagee's Cordial was replaced by cod liver oil.

Street says:

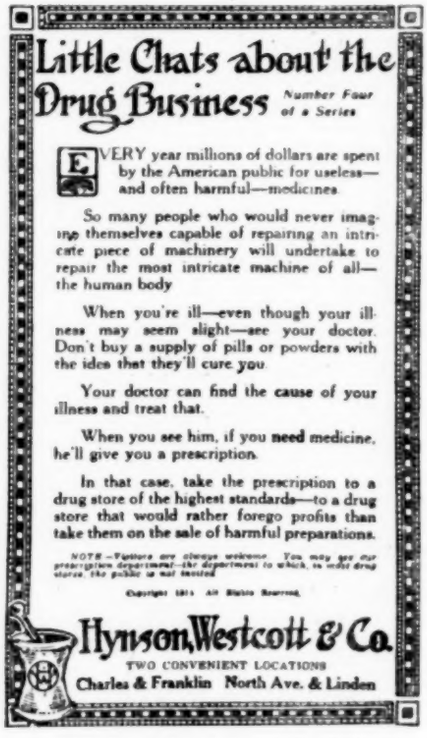
"None of the four rats did well on Hagee's Cordial; in fact, they lost 1.2 to 15.4 gm. during feeding periods of from seven to fourteen days."

"The rats failed so quickly when put on Hagee's Cordial that in two cases the animals did not recover even when put on the full cod liver oil ration."

". . . the four rats during the Hagee period, instead of gaining the normal 24 gm., actually lost 36.2 gm., while during the cod liver oil period instead of gaining 114 gm., they gained 156.4 gm."

"The inferiority of Hagee's Cordial as a reconstructive and a nutrient compared with ordinary cod liver oil is apparent."

Hagee's Cordial of the Extract of Cod Liver Oil Compound has neither the nutritive qualities nor the reconstructive efficacy of cod liver oil. This mixture is worthless for the conditions for which it is advertised, and is marketed under misleading and unwarranted claims. It is recommended that Hagee's Cordial be held ineligible for New and Nonofficial Remedies.


Little Chats about the Drug Business
Number Four of a Series
EVERY year millions of dollars are spent by the American public for useless—and often harmful—medicines.
So many people who would never imagine themselves capable of repairing an intricate piece of machinery will undertake to repair the most intricate machine of all—the human body.
When you're ill—even though your illness may seem slight—see your doctor. Don't buy a supply of pills or powders with the idea that they'll cure you.
Your doctor can find the cause of your illness and treat that.
When you see him, if you need medicine, he'll give you a prescription.
In that case, take the prescription to a drug store of the highest standards—to a drug store that would rather forego profits than take them on the sale of harmful preparations.
NOTE—Visitors are always welcome. You may see our prescription department—the department to which, in most drug stores, the public is not invited.
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Hynson, Westcott & Co.
TWO CONVENIENT LOCATIONS
Charles & Franklin North Ave. & Linden

A CREDITABLE ADVERTISEMENT.—This is a reduced reproduction of one of a series of advertisements that Hynson, Westcott & Co., Baltimore, pharmacists, are running in the local newspapers. Intelligent laymen and physicians alike must agree that they are a wholesome and refreshing change from the average drug-store advertisement. The concern that puts them out is alive to the dignity and importance of the profession of pharmacy.

Wampole's Perfected and Tasteless Preparation of an Extract of Cod Liver

Wampole's Preparation is another of the oil-free "extracts" of cod liver. The following formula (which, be it observed, is non-quantitative and therefore practically worthless) is published by the owners, Henry K. Wampole & Co., Inc.:

"Contains a solution of an extractive obtainable from fresh cod livers, the oily or fatty portion being afterward eliminated. This extractive is combined with Liquid Extract of Malt, Fluid Extract of Wild Cherry and Compound Syrup of Hypophosphites (containing Calcium, Sodium, Potassium, Iron, Manganese, Quinin and Strychnin)."

An alcohol content of 17 per cent. is declared on the label. The following claims are typical of those made for the preparation:

"This grease, or oil, is not present in Wampole's Preparation of the Extract, which *is palatable* and, at the same time, very efficient as a stimulant to the centers of nutrition and assimilation. It is unsurpassed as a reconstructive tonic . . ."

"[Cases] with a marked tendency to pulmonary troubles, . . . if a timely impulse be given them will easily shake off the impending evil. Wampole's Preparation gives that timely impulse . . ."

In the Council's opinion, as previously expressed,[1] such therapeutic value as there may be in cod liver oil is chiefly, if not altogether, due to the fat (oil). Lately, the investigations of J. P. Street of the Connecticut Agricultural Experiment Station have definitely disproved the claims made for the Wampole's and similar preparations. In Street's experiments, rats were placed on a ration insufficient for normal nutrition and growth. After the rats had been on the ration for a time long enough for inability to maintain weight to become evident, dealcoholized Wampole preparation was substituted for a portion of the lard contained in the ration. Later the Wampole preparation was replaced by cod liver oil. From these experiments it appears that, although the Wampole preparation is said to contain malt extract and sugar, it does not show the advantage over ordinary cod liver

1. THE JOURNAL A. M. A., Oct. 9, 1909, p. 1201.

oil as a source of nutriment which is claimed for it by the manufacturers. Street emphasizes that the Wampole preparation does not possess to any marked degree the reconstructive properties of cod liver oil, butter fat and egg yolk, on which foods rats gain weight rapidly and steadily after having been on a deficient diet. Street calls attention to the fact that the amount of alcohol consumed daily by the user of the Wampole preparation (the equivalent of 0.7 fluid-ounces of whiskey) explains to a considerable extent the asserted tonic virtues of the preparation.

Though offered as an efficient substitute for cod liver oil, Wampole's "Perfected and Tasteless Preparation of an Extract of Cod Liver" lacks both the nutritive and the reconstructive properties and is marketed under an indefinite name and unwarranted and untrue claims. It is recommended that Wampole's Preparation be held ineligible for New and Nonofficial Remedies.

THE ELECTRO-CHEMICAL RING

The Post-Office Puts a Silly Fraud Out of Business

Is it possible to devise a scheme so silly, a fake so flagrant, a swindle so self-evident that the public will have none of it? The history of the "Electro-Chemical Ring" seems to answer this question in the negative. Of all utterly futile pieces of charlatanry it is doubtful if any ever surpassed the Electro-Chemical Ring fraud.

This device was put on the market by the Electro-Chemical Ring Company of Toledo, Ohio, a concern owned by one W. G. Brownson and conducted by him since 1892. The Electro-Chemical Ring was a simple ring made of iron of commercial quality. The claim was made that the ring "Cures Diseases Caused by Acid in the Blood." According to Brownson, some of the diseases thus caused are:

Bright's Disease	Nose-bleed	Asthma
Diabetes	Adenoids	Headache
Chorea	Goiter	Obesity
Painful Monthly Periods	Cataract	Appendicitis
	Rheumatism	Cancer
Uremia	Gout	Stone in the Bladder
Epilepsy	Lumbago	Psoriasis
Varicose Veins		

These are but a few of the various diseased conditions that, according to Brownson, are "Caused by Acid in the Blood" and would be cured by wearing his iron ring. Here are a few of the claims made in detail by Brownson for his silly fraud:

"Gravel is like brick-dust, and calculi is about the size of the head of a pin. The ring will stop that accumulation at once, and it is unusual for a person to have an attack of either, after the ring commences to work.

"Gall-stone requires more time. The ring will stop the accumulation at once, but sometimes it will be six weeks or more before the loose stones will become small enough and smooth enough to come out."

"Bright's disease and diabetes cases should show a very decided change for the better, in from twelve hours to four days, after the ring commences to work, and you can tell by the color, quantity, odor and deposit."

"Varicocele is varicose veins of the scrotum, the same as a person may have in the leg, and is as easily cured."

"Diabetes with children—wetting the bed—often leads to St. Vitus's dance; and other diseases. The Electro-Chemical Ring stops the cause and cures both."

"Epileptic fits and monthly spasms are caused by an excess of acid, and the ring has cured cases that have been given up as incurable. Hospitals, asylums, and sanitariums are over-crowded by such cases, and it is an awful outrage to leave them there, when nearly all can be cured by using this ring."

Of course the only evidence submitted of the virtue of the ring were testimonials. Brownson was perfectly willing to sell agencies for his ring and advertised that he had agents in all lines of business except jewelers and druggists. His reason for refusing to give an agency to a jeweler, was:

"Jewelers have sold so many fake rings; they have injured the business and we cannot afford to put the ring in that trade."

And as for druggists:

"Druggists cannot afford to sell the Electro-Chemical Ring; it cures too many diseases for which they have medicine to sell."

However, Brownson still had a large list of agents to draw from. Thus, according to his report, he had granted agencies to bank presidents and train baggagemen; presiding elders and commercial travelers; cigar dealers and ministers; ladies, postmasters, and veterinary surgeons. These, and many others, are said to have eked out their income by accepting the agency for the Electro-Chemical Ring—price $2.00.

THE GOVERNMENT'S REPORT

But let us quote from the memorandum for the Postmaster General recommending the issuance of a fraud-order against this grotesque fake:

"The inspectors who conducted the investigation of this concern wrote a number of test letters under assumed names representing that the writers in the several instances had 'cataract—almost blind,' 'asthma,' 'cancer,' 'loss of use of arm,' 'pellagra,' 'bad case of varicocele' and 'epileptic fits' and asked if the ring would cure the ailment. In each instance the respondent replied representing that the ring would cure the particular disease and offered to refund the money if a cure should not be effected. The reply to the alleged 'cataract' case test letter is typical and reads as follows:

"Yours 18th. Will inclose book. See what we guarantee the ring for page 2. As you will see we sell the ring on the guarantee to cure Cataract. It never fails and the cataract will not grow after the person commences to wear the ring. You should certainly try the ring. If it does not help within three weeks you will get your money, if you return the ring."

"One of the rings received in these test cases was referred to the Department of Agriculture, Bureau of Chemistry, for analysis, with the result shown in a letter from that Bureau dated July 16, 1914, reading:

"'Replying to your favor of July 14th relative to "an electro-chemical ring" (106768c). You are advised that an analysis of the ring in this Bureau shows that it is composed of a commercial grade of iron. You do not state whether or not you desire an expression of opinion as to the value, if any, of the article in the conditions mentioned in your letter, namely, "diseases caused by acid in the blood," but for your information it may be said that in the opinion of the Bureau the wearing of the ring would have no efficacy in this connection.

"'W. O. EMERY, Acting Chief, Drug Division.'

"One of the rings was also submitted to the Department of Commerce, Bureau of Standards, for examination, and its report reads as follows:

"'When this ring is worn as an ordinary finger ring, there can be no *electrochemical* action between the ring and any acid in the blood.

"'While there would be a *chemical* action between the ring and the natural perspiration on the finger, this is a *chemical* action in exactly the same sense as it is chemical action when an iron nail, for example, or such a ring as this one, is dissolved in an acid in a beaker.

"'As the word "electrochemical" is ordinarily used by both technical and non-technical writers, an electrochemical action requires two electrodes, usually metals, immersed in, or in contact with, an electrolyte, and the metals must also be in contact or joined by a conductor.'

"In view of the numerous representations made throughout the booklet that a deposit would appear on the ring if the wearer were afflicted with a disease which the ring could cure, the inspectors conducted several experiments. One of

the rings was placed on a tightly-rolled piece of blotting paper slightly dampened and was allowed to remain for one hour and forty-five minutes, with the result that a deposit of rust was left on the paper. The second experiment was made on a piece of sterilized muslin still damp from sterilization. After two hours and fifty minutes a similar deposit of rust was found. This deposit of rust is evidently what the literature of the respondent fraudulently represents to be an 'electro-chemical deposit' and regarding which it is subtly suggested 'if there should be an unusual deposit in hot weather, it is caused by what you eat and drink.'

"No evidence was produced by respondent tending to justify in any degree the representations as to the curative properties of the ring, with the exception of a reference to testimonials or alleged testimonials, and I find that the ring in question has no efficacy in the treatment of disease as represented and that the representations of the respondent in this connection are knowingly false and fraudulent. . ."

"In his answer the respondent volunteered the information that his receipts for the last year were $45,600; that he paid income tax on $15,500 for ten months and that he employs fourteen people in the business. The postmaster at Toledo reports that the concern is now receiving an average of eighty pieces of mail a day.

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, in violation of Sections 3229 and 4041 of the Revised Statutes, as amended, and therefore recommend that a fraud order be issued against the Electro-Chemical Ring Company and its officers and agents as such, Toledo, Ohio."

The fraud-order was issued against the Electro-Chemical Ring Company, Oct. 1, 1914. No sooner had the mails been denied to this concern than Brownson made arrangements to evade the law by continuing the business under his own name. This fact was brought to the attention of the federal authorities and the fraud-order was extended to cover the name of W. G. Brownson.

Correspondence

Effects of the Harrison Law

To the Editor:—I have looked over our records and have been interested in noting some of the effects of the Harrison law. I find that eleven deaths during the month of March are attributed to morphin. Seven deaths occurred indirectly from the sudden cessation of the use of morphin. Four died from taking an overdose of morphin. One of the four died from taking an overdose of "Dr. Weatherby's Remedy," a morphin cure containing over seventeen grains of morphin sulphate per ounce.

During the month of December we did not have one death from morphin. During January and February our record shows one death for each month from morphin.

Wm. D. McNally,
Coroner's Chemist, Cook County, Chicago.

[Dr. McNally is the chemist attached to the office of Peter M. Hoffman, coroner of Cook County, Ill. The records include the reports of the coroner's physicians and the chemical examination of the organs].

Radiant Energy and Cataract

To the Editor:—In a recent editorial ("Radiant Energy and Cataracts," The Journal, Feb. 20, 1915, p. 668) you comment on the contention of Burge that senile cataract is due to the action of ultraviolet light, without, it seems to me, sufficiently pointing out the fallacies in his argument. Burge found that the rays from an unscreened quartz mercury vapor lamp had almost no coagulating effect on the lens protein even after an exposure of seventy-two hours at a distance of 5 cm., but that when acting in the presence of weak solutions of calcium chlorid, magnesium chlorid, sodium silicate or dextrose, coagulation occurred. Since in senile cataracts calcium, magnesium, and sometimes silicates, are greatly increased, and in diabetic cataracts dextrose is presumably present, Burge assumes that these cataracts are due to the action of ultraviolet light. That is, he assumes that these substances are present in undue quantities in the lenses of certain individuals, and this renders the lenses vulnerable to the short waves of daylight.

This assumption is sufficiently controverted by the fact that senile cataract usually begins below where the lens is protected by the iris from radiations of all wave lengths. But in addition to this, other serious objections to his argument may be pointed out. In the first place, in traumatic cataracts and cataracts due to inflammatory conditions of the eye, calcium salts, and no doubt also magnesium and other salts, are deposited in great abundance, and the lens may even become completely calcified. In fact, the same thing occurs in dead tissues anywhere in the body, so that the reasonable assumption is that the presence of these salts in senile cataract is a result, not a cause. Then, too, Burge made use of intensities of exposure and wave lengths to which the lens is never subjected during life. The cornea completely screens it from practically all the short waves found effective by him.

Burge suggested also that his results might apply to glass-blowers' cataract, overlooking the fact that the latter typically begins in the posterior pole of the lens, whereas in his experiments the part of the lens facing away from the light was little if at all affected after the most prolonged exposures.

The fact that the relatively solid lens substance is less readily coagulable than fluid egg albumin or serum is not surprising, nor is the fact surprising that various salts should increase the coagulability of lens protein or any other protein.

F. H. Verhoeff, M.D.,
Massachusetts Charitable Eye and Ear Infirmary, Boston.

[Comment.—The foregoing letter was referred to Professor Burge, who says:]

To the Editor:—I wish to point out that what Dr. Verhoeff terms fallacies in my argument regarding the production of cataract is in reality a misinterpretation or a misunderstanding of that argument.

He states that my assumption that senile cataract is due to a modification of the lens protein in such a way that ultraviolet radiation can precipitate it and hence produce cataract "is sufficiently controverted by the fact that senile cataract usually begins below where the lens is protected by the iris from radiations of all wave lengths." So far as I have been able to learn from ophthalmologists in this country and by correspondence from ophthalmologists in India, where senile cataract is of comparatively frequent occurrence, I do not think that Dr. Verhoeff's sweeping statement that "senile cataract usually begins below where the lens is protected by the iris from radiations of all wave lengths" is confirmed. I think a statement made by Schanz represents the present status of opinion regarding this type of cataract:

"The beginning of the cataract in the lower half of the lens is explained by the effect of light upon it. The lower half of the lens is affected by a quite differently constituted light to the upper. When we stand outdoors, direct sunlight and light from the sky affect the lower half of the lens while the upper is exposed to the influence of that reflected from the ground. . . . There can be absolutely no doubt that the light to which, during life, the lower half of the lens is exposed is much richer in short wave lengths than that which affects the upper half of the lens."

The objection is also made that I made use of intensities and wave lengths to which the lens is never subjected during life. The intensity of exposure was made great with the hope that the same effect might be produced in a period of time experimentally possible as is produced by less intense exposure over longer periods, such as is required for the formation and maturing of a cataract in a person. In my experiments I found that the most effective region for the precipitation of the modified lens protein under the conditions of the experiments was around 265 microns, since precipitation in this region could be produced after about twenty hours'

exposure. However, when the exposure was continued for 100 hours, precipitation of the modified lens protein occurred throughout the whole ultraviolet region, extending almost to the visible spectrum. This fact would seem to rule out his contention that the cornea forms an effective screen, since the cornea is not considered to cut out any wave lengths above 300 microns. I am convinced that any of the shorter wave lengths can bring about precipitation of the modified lens protein provided enough energy can be gotten into these wave lengths.

Another objection is concerning the application of my results to glassblowers' cataract, which usually begins in the posterior pole, whereas in my experiments the opacity began on the side of the lens next to the light. The beginning of glassblowers' cataract at the posterior pole is believed by Cramer to be caused by the greater concentration of chemical rays at that point, due to the refractive power of the eye media. The lenses in my experiments were distorted by being forced into quartz tubes and hence, if Cramer's explanation is a correct one, Verhoeff's criticism is not applicable to my experiments.

Verhoeff states that it is not surprising that various salts should increase the coagulability of lens protein or of any other protein. In my experiments I did not try out the effect of various salts, but made use of those elements which I had found were greatly increased over the normal in cataractous lenses. Whether it is surprising or not surprising that these substances should increase the coagulability of the lens protein I am not prepared to say.

W. E. BURGE,
Department of Physiology, University of Illinois, Urbana.

Different Attitudes of the Medical and Legal Professions

To the Editor:—I enclose a letter written by a well-known theologian and author, Henry C. Vedder, of the Crozer Theological Seminary, Chester, Pa., and would call attention to a paragraph which is of pertinent concern to physicians:

"I wonder why it is that men in the medical profession are so much more open to new ideas about social matters than men in the other professions. I have received a good many letters similar to yours from doctors, but never one from a lawyer. I have thought that perhaps the secret might be that lawyers are trained to have too great respect for precedent, and that this makes them conservative even when their temperament is radical; while the physician is trained according to the scientific method, and is taught to keep an open mind on all professional subjects, which inclines him to open-mindedness about everything else."

Coming from such a source it recognizes what would seem to be a deep movement in human thought and action tending inevitably to place the medical profession clearly at the forefront of every effort for social service and human betterment, a legitimate intellectual leadership that has been developed in modern times by the exercise of scientific powers to which there is no analogy in any other professional calling.

The title of the little work by Mr. Vedder in question is "The Gospel of Jesus and the Problems of Democracy," and was casually read by me some time ago in the course of collateral studies, and his manner of statement and reasoning seemed so fair, so sane and modern that a note of congratulation was sent through his publishers, and the letter is his acknowledgment.

Bearing on his comment touching the attitude of the legal profession, its indifference toward social problems and the like, almost at the moment of answering his note I opened Alfred W. Benn's new edition of his "The Greek Philosophers" and on page 161 found quoted Plato's scorching criticism of the legalists of his day, the translation being by Jowett from Theaetetus.

It was something of a revelation to me, and legal friends to whose attention it has been called have relied for defense on the strictest of technicalities.

GEORGE HOMAN, M.D., St. Louis.

Relationship of Veronal, Sulphonal and Trional

To the Editor:—In the series of articles on "Practical Pharmacology," it is stated that "veronal is closely related chemically and therapeutically to sulphonal and trional," and that "its actions do not differ essentially from those of sulphonal and trional qualitatively" (THE JOURNAL, March 20, 1915, p. 994). As these statements, which are so commonly made, seem to me to be demonstrably incorrect, I feel that they ought not to be allowed to pass unchallenged. Of course all of these drugs belong to the series of aliphatic compounds and are therefore in a sense chemically related, but the chemical relation between veronal and sulphonal does not seem any closer than that between veronal and chloral, for instance. The characteristic radical of sulphonal is the ethyl-sulphone group ($C_2H_5SO_2$) which is not found in veronal, while the carbamid group in veronal is not found in sulphonal. Chemically veronal is more closely related to ethyl carbamate than it is to the sulphone somnifacients. The physiologic differences between veronal and sulphonal are equally wide. While in overdose veronal is an active poison and in several instances has caused death, fatal results from acute sulphonal poisoning are extremely rare. Moreover, the symptomatology of the poisoning is quite different. In a large number of patients veronal, even in doses not grossly excessive, will produce dermatitis: I have not seen any report of skin lesions following the use of the sulphones. The characteristic symptom of chronic sulphonal poisoning is hematoporphyrinuria, which as far as I know has not been caused by veronal. Even in therapeutic doses veronal often exercises a diuretic effect, apparently from its carbamid group; this effect does not seem to be caused by the sulphones. Other differences in their action might be pointed out, but I think these facts are sufficient to show that veronal is not closely related to sulphonal and trional either chemically or therapeutically.

HORATIO C. WOOD, JR., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ON THE HARRISON ANTINARCOTIC ACT

REGARDS THE LAW AS A REFLECTION ON PHYSICIANS

To the Editor:—I will appreciate your reply to the following questions relative to the Harrison drug act:

Do you believe the abusive use of habit-forming drugs, in the hands of a few unscrupulous physicians, sufficient excuse for the passage of such a drastic act?

Do you consider this law a reflection on every member of the profession, in being forced into a species of detective business?

Do you believe this work should have been in the hands of an efficient police force, instead of that of the physician?

Who is this man Harrison? What are his private interests?

Have you reasons for believing the passage of this act was prompted by his desire to serve individuals, instead of special interests?

As a member of the profession and of the American Medical Association, I feel that there was need of restrictions; but why must every physician be placed in a position of distrust and suspicion, when only a comparatively small number are guilty of the criminal administration of dope? This is very much like believing every man guilty of a crime committed, until a proceeding is taken to prove that he is not actually guilty. How about it? C. B. G.

ANSWER.—The abuse of habit-forming drugs by physicians is not the reason for the passage of the Harrison law. In the editorial in THE JOURNAL, March 6, 1915, p. 834, appears a history of this movement. The law is not a reflection on the medical profession any more than it is on druggists, dentists, manufacturers, dealers and other persons affected by it. The object of the law is to check the use of habit-forming drugs. The Harrison bill is so called because it was introduced by Hon. Francis Burton Harrison, now Governor General of the Philippines, formerly a member of Congress from New York. While he introduced the bill, it was drafted by the State Department in accordance with our international treaties. At the previous session of Congress, it was introduced by Hon. Shelby M. Cullom, at that time senator from Illinois, and was known as the Cullom bill.

Governor Harrison has no interest in the matter except the cause of good government. This question has been before Congress for many years and has been given the most careful consideration. It is no reflection on the medical profession and will cause but slight inconvenience to physicians, while its enforcement will undoubtedly be of great benefit both to the public and the profession.

Treatment of Habitués

To the Editor:—Pursuant to your offer in current issue of The Journal to advise on points of the Harrison law, I wish to make to you the following statements and ask the following questions, on which I hope you will quickly give me all the information necessary:

I am the only physician or person practicing medicine or keeping drugs of any kind in this village. The nearest drug store is 9 miles away. There is living here an old soldier (aged 77 years) who uses morphin to the extent of about 1 grain a day and who has depended on me to supply this to him. Question: 1. Can I under the law supply this man and not be liable to penalty? If so, how? If not, what disposition can I make of him so that he will not suffer for the want of the drug?

2. If I call at a patient's house, or if a patient comes to my office in need of any of the prohibited drugs, must I keep a record of what I dispense to him? In other words, if I am called to a patient's house and see the need of leaving half a dozen one-quarter grain morphin tablets for this patient's use, can I leave them without keeping any record and be within the limits of the law? A. J. M.

Answer.—1. The Harrison law does not restrict the right of a physician to prescribe as he may see fit. It requires him to keep a record of any drugs which he dispenses and requires the druggist to keep the copy of prescriptions for such drugs. Whether in the future any restrictions will be placed on physicians as to the continuous prescribing of these drugs to habitués without any attempt to reduce the dose or cure the patient of the habit remains to be seen. At present, the only thing required is that each physician must be able to show from his records exactly what he has done, and as all of these transactions may become public, it would naturally be advisable for a physician to be able to justify anything that he may do.

2. Under the present rulings of the Commissioner of Internal Revenue, a record must be kept of all habit-forming drugs dispensed.

Some Exceptions

To the Editor:—1. (*a*) A patient has been a habitué for years. Shall I violate the law if I prescribe an opiate for him?

(*b*) If I can, is it the law that I should attend him in person and see that it is indicated; before prescribing for him?

2. (*a*) I visit a patient. Do I have to keep copy of prescription on file if I write an opiate for him?

(*b*) Should I keep copy of prescription for an opiate for one of my patients that I haven't seen?

(*c*) Do I have to attend them before I can lawfully prescribe an opiate? Thomas E. Anderson, M.D., Carthage, Tex.

Answer.—1. (*a*) No. (*b*) No.
2. (*a*) No. (*b*) No. (*c*) No.

PHENOL AND CHLORAL IN TETANUS

To the Editor:—The answer to the question of Dr. Mallarian regarding the use of phenol in tetanus and the action of hydrated chloral (The Journal, Feb. 20, 1915, p. 686) seems to me at least capable of misleading.

Speaking of the fatal dose of phenol you say: ". . . which is as a minimum 15 gm. (½ ounce)." That is truly remarkable. Meyer and Gottlieb, English translation, p. 515, say: "Toxicology.—This drug (phenol) is rapidly absorbed wherever applied, even through the skin, and its systemic action is exerted chiefly on the central nervous system. In animals poisoned with it at the start symptoms of excitation of the medullary and spinal centers preponderate, but in man, when poisonous amounts are absorbed, paralysis of the central nervous system occurs, usually without preceding convulsions. As even 1 to 2 gm. can produce poisoning and as 3 to 10 gm. are usually fatal, the maximal dose for internal administration should be 0.1 gm."

The doses of hydrated chloral mentioned are no less remarkable. Sainton gave his patients 12 to 16 gm. of chloral per rectum daily. This is equivalent to about ⅕ to ¼ gm. per kilogram daily, and as the drug is absorbed as readily from the rectum as from the stomach (or duodenum), at least in the cat, the doses seem to me to be distinctly dangerous.

I am well aware that with dogs the case is quite different, and enormous amounts may be given to them in divided doses.

There is good reason for thinking that man behaves toward chloral in a way intermediate between the cat and dog, but much more like the cat, for single therapeutic doses act for more than a day in man.

The suggestion that tetanus patients are more tolerant toward phenol and chloral than normal man is dangerous unless supported by evidence.

Picrotoxin has an apparent antagonistic action toward chloral, but the antagonism is almost negligible, so far as practical results in saving life are concerned. This matter was investigated by Husemann about fifty years ago, and his results were largely forgotten, but I believe that his conclusions are correct.

Certainly, I believe that the administration of 12 or 16 gm. of hydrated chloral per day must be extremely dangerous, and should the average physician attempt to approach those doses, dire results would probably follow. It is commonly stated that chloral injures the heart much as chloroform does, and while this is not always true, it is obvious that it is not to be expected that tetanus can have any protective action against chloral so far as the heart is concerned. I simply do not believe that any man ever received 93 gm. of hydrated chloral in such a way as to insure absorption in one day and survived. D. C. R.

Answer.—With regard to the dosage of phenol, our correspondent is correct; 15 gm. (½ ounce) is a frequently fatal dose. According to Petersen and Haines, Legal Medicine and Toxicology, ii, 595: "The fatal dose of carbolic acid taken internally was placed by Falck at about ½ ounce (15 gm.). In a series of cases collected by this author most of the patients taking this or a larger dose died, while most of those who took a smaller dose recovered. Death has, however, resulted from the taking of much smaller doses; thus a woman died from 22 grains (1.4 gm.) while 1 dram (3.7 c.c.) of the liquid acid proved fatal in twenty-three hours to a girl of 17. It is said that most cases in which 60 grains were taken and retained and the proper treatment was not given ended fatally."

The statement that 93 gm. or 3 ounces of hydrated chloral were given in twenty-four hours without causing death was taken from Petersen and Haines, ii, 550. This was, of course, very large dosage and a practice which we would not recommend to be followed.

AUTOSEROTHERAPY IN SKIN DISEASES

To the Editor:—1. What is meant by autoserotherapy? 2. What is its principle of application? 3. Has it any place in chronic skin diseases, such as psoriasis and eczema? G. Earl Low, M.D., Klein, Mont.

Answer.—1. The term "autoserotherapy" is applied to injections of the patient's own blood serum or exudate serum. Blood serum is obtained by drawing off from a vein, usually at the elbow, a quantity of the patient's blood, from 50 to 250 c.c., allowing this to clot, and separating the serum from the clot by centrifuging. The serum is then reinjected into the patient, either into a vein or into the gluteal muscle. The serum of exudate in most cases is obtained from pleural exudate, which is removed in the usual way and reinjected either directly or after centrifugation.

2. The principles of the assumed action are not clearly formulated. In some cases, especially of exudates, it may be assumed that the serum contains antigenic substances so that the method might be regarded as a variety of autogenous vaccine treatment. It is also possible that substances are in the blood serum that stimulate leukocytic action and cause leukocytosis, because the serum will contain remnants of leukocytes and we know that leukocytic extract causes leukocytosis.

3. The method is being given a wide trial in various chronic skin diseases, especially in psoriasis and in rebellious itching dermatites. The results reported so far are not conclusive.

LITERATURE ON HODGKIN'S DISEASE

To the Editor:—I should like to obtain a list of articles on the cause and treatment of Hodgkin's disease, including particularly the literature of the past two or three years. J. K. R.

Answer.—The following is a list of articles on this subject:

Bunting, C. H.: Blood-Picture in Hodgkin's Disease, *Bull. Johns Hopkins Hosp.*, June, 1914; abstr., The Journal, July 4, 1914, p. 59.

Bunting, C. H.: Hodgkin's Disease, *Bull. Johns Hopkins Hosp.*, June, 1914; abstr., The Journal, July 4, 1914, p. 60.

Yates, J. L.: Clinical Consideration of Hodgkin's Disease, *Bull. Johns Hopkins Hosp.*, June, 1914; abstr., The Journal, July 4, 1914, p. 60.

Steele, A. E.: Corynebacterium Hodgkini in Lymphatic Leukemia and Hodgkin's Disease, *Boston Med. and Surg. Jour.*, Jan. 22, 1914; abstr., The Journal, Feb. 7, 1914, p. 488.

Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, *Arch. Int. Med.*, August, 1913; abstr., The Journal, Sept. 13, 1913, p. 895.

Motzfeldt, K.: Hodgkin's Disease, *Norsk. Mag. f. Laegevidensk.*, November, 1913; abstr., The Journal, Dec. 6, 1913, p. 2114.

Ceconi, A.: Leukemia and Pseudoleukemia, *Gazz. d. Osp.*, Jan. 26, 1913; abstr., The Journal, March 8, 1913, p. 793.

Harris, H.: Treatment of Hodgkin's Disease by Roentgen Rays, *Australasian Med. Gaz.*, June 8, 1912; abstr., The Journal, Aug. 17, 1912, p. 579.

Beumelburg, K.: Pseudoleukemia, *Beitr. z. Klin. d. Tuberk.*, 1912, xxiii, No. 2.

Blackford, J. M.: Hodgkin's Disease and Sarcoma of Cervical Glands, *Surg., Gynec. and Obst.*, January, 1912; abstr., The Journal, Feb. 10, 1912, p. 440.

Blumberg, F.: Four Cases of Lymphogranulomatosis, *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1912, xxiv, No. 3; abstr., The Journal, April 27, 1912, p. 1321.

Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, The Journal, Nov. 15, 1913, p. 1803; ibid., Feb. 14, 1914, p. 516.

Billings, F., and Rosenow, E. C.: Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL, Dec. 13, 1913, p. 2122.
Lawson, G. B., and Thomas, E. A.: Case of Hodgkin's Disease Treated with Benzene, THE JOURNAL, Dec. 13, 1913, p. 2157.
Stengel, A., and Pancoast, H. K.: Treatment of Leukemia and Pseudoleukemia with X-Rays, THE JOURNAL, Sept. 28, 1912, p. 1160.
Etiology of Hodgkin's Disease, editorial, THE JOURNAL, March 23, 1914, p. 1019.
Litterer, U.: Corynebacterium Hodgkini, abstr., THE JOURNAL, May 9, 1914, p. 1498.
Mills, C. K.: Paraplegia in Pseudoleukemia; Treatment by Laminectomy and Roentgen Ray, abstr., THE JOURNAL, Nov. 16, 1912, p. 1815.
Negri and Mieremet: Aetiologie des malignen Granuloms, *Centralbl. f. Bakteriol.*, orig., 1913, lxviii, 292.

PROPERTIES OF CARBON TETRACHLORID

To the Editor:—Please discuss the chemical, therapeutic and toxic properties of carbon tetrachlorid.

As this chemical is one of the constituents of fire extinguishers, I should like to know if this chemical has any toxic properties when it comes in contact with oil or fire burns. Please answer in your Queries column under my initials. F. J. P.

ANSWER.—Carbon tetrachlorid is a colorless liquid closely resembling chloroform. It is volatile but noninflammable. It dissolves in various organic liquids and is an excellent solvent for fats and other organic substances. It is liable to be contaminated by carbon disulphid in consequence of the employment of the latter in its manufacture. Its physiologic action closely resembles that of chloroform. It is anesthetic but has not been employed in surgery. We find no description of its toxic action, but it is probable that its action in this respect would be similar to that of chloroform. It has not been used therapeutically, so far as we know, in medicine. It would probably be irritant to burns and ulcerated surfaces. It is used very largely as a cleaning fluid and, as our correspondent says, for fire extinguishers. The activity of this substance for the latter purposes is due to the fact that it surrounds the burning object with an atmosphere of noncombustible vapor.

TRAUMATIC ERYSIPELAS

To the Editor:—Are there any cases on record in which erysipelas developed some distance from injury? A patient of mine cut his finger one week previous to developing phlegmonous erysipelas of the arm over the biceps on the same side as the injury, affecting practically the entire upper half of the body. The question arises, Is this traumatic erysipelas due to the cut of the finger or is it of the so-called idiopathic variety? It is important in this particular case, as it would come under the liability and compensation act of this state, if due to the cut, which was received while at work. I hold that streptococci entered the site of injury, and traveled by way of the lymphatics, starting the erysipelatous condition at a distance from the seat of entrance.

ALEXANDER MARK, M.D., Elmira, N. Y.

ANSWER.—The recorded cases of erysipelas do not indicate by their titles whether the condition referred to is described or not. Text-books, however, indicate that such a condition may occur. Thus it is stated that erysipelas is most pronounced at the borders of the patch, and the color fades at the original focus as the disease advances at the periphery of the red area. Erysipelatous redness may develop in spots with intervening healthy skin, as appears to have happened in the case described by our correspondent. The point of origin, as a rule, shows the least redness, the least swelling and the least pain. In the case described, the explanation given by our correspondent is probably correct.

THE THERAPEUTIC TEST FOR TRACHOMA

To the Editor:—In my readings regarding trachoma I notice they sometimes speak of the "therapeutic test." Please tell me what this is.

C. R. BYARS, M.D., Bay City, Texas.

ANSWER.—There is no absolute therapeutic test for this disease. Follicular conjunctivitis may for a time closely simulate trachoma in its clinical aspects, and be stubborn in yielding to treatment. When a case of this variety has been treated by efficacious methods and fails to respond after several weeks or months of treatment, one may feel morally certain that he has to deal with a case of genuine trachoma. This is probably what is referred to by various writers as the therapeutic test. It furnishes strong presumptive evidence that the condition is not one of benign conjunctivitis. Of course a microscopic examination, both of the discharge and of the granular tissue, should be made in all such cases, but as this not infrequently is not done, or is unsatisfactory, the therapeutic test may assist in arriving at a conclusion as to the exact character of the so-called "granular" lids.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 11-12. Sec., Dr. W. S. Stewart, Citizens Bank Bldg., Pine Bluff. Homeopathic: Little Rock, May 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock. Eclectic: Little Rock, May 13. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.

ILLINOIS: Chicago, May 13-15. Sec., Dr. C. St. Clair Drake, Springfield, Ill.

LOUISIANA: Homeopathic, New Orleans, May 3. Pres. Dr. C. R. Mayer, 919 St. Charles St., New Orleans.

MASSACHUSETTS: Boston, May 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEVADA: Carson City, May 3. Sec., Dr. S. L. Lee, Carson City.

NEW MEXICO: Santa Fe, April 12. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 13. Sec., Dr. John W. Duke, Guthrie.

TENNESSEE: Knoxville, Memphis and Nashville, May 3. Sec., Dr. A. B. DeLoach, 426 Scimitar Bldg., Memphis.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 61 12th St., Wheeling.

Idaho October Report

Dr. John F. Schmershall, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Wallace, Oct. 6-7, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College		(1914)	84
Illinois Medical College		(1910)	83
Univ. of Michigan, Dept. of Med. and Surg.		(1883)	81
Kansas City Medical College		(1896)	87
Western Reserve University		(1913)	84
University of Oregon		(1914)	81

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1913)	Utah
Chicago College of Med. and Surg.		(1910)	Utah
University Medical College, Kansas City		(1914)	Utah

Nebraska November Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 11-12, 1914. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 13, of whom 11 passed and 2 failed. Eight candidates were given reregistration licenses. Twenty-three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1914)	88.5
Bennett Medical College		(1912)	76.1, 80.2
Boston University		(1913)	84
John A. Creighton Medical College		(1914)	78.7, 80.9, 82.7, 83.9
University of Nebraska		(1914)	80.4
Columbia University, Coll. of Phys. and Surg.		(1914)	88.1
Cornell University		(1912)	88.6
	FAILED		
Bennett Coll. of Eclectic Med. and Surg.		(1907)	64.4
Lincoln Medical College		(1910)	73.1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1911)	Colorado
Atlanta College of Phys. and Surgs.		(1909)	Georgia
Chicago Coll. of Med. and Surg.		(1908)	Wisconsin; (1909) Iowa
Chicago Homeopathic Medical College		(1903)	Ohio
Hahnemann Medical Coll. and Hosp., Chicago		(1913)	Illinois
National Medical University, Chicago		(1904)	Iowa

Northwestern University	(1912)	Illinois
•Rush Medical College	(1910)	Illinois
Keokuk Medical College	(1900)	Iowa
Sioux City College of Medicine	(1903)	Iowa
State Univ. of Iowa, College of Medicine	(1906)	Iowa
State Univ. of Iowa, College of Homeo. Med.	(1891)	Iowa
Kentucky School of Medicine	(1904)	Indiana
Tulane University of Louisiana	(1906)	Illinois
College of Phys. and Surgs., Boston	(1906)	Nevada
University of Mich., Dept. of Med. and Surg.	(1901)	Michigan; (1906) Colorado; (1913) Michigan.
American Medical College	(1913)	Illinois
Kansas City Hahnemann Medical College	(1914)	Kansas
Northwestern Medical College, St. Joseph	(1892)	Missouri
Eclectic Medical College, Cincinnati	(1910)	Arkansas

Texas November Report

Dr. W. L. Crosthwait, secretary of the Texas State Board of Medical Examiners, reports the practical and written examination held at Waco, Nov. 10-12, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 34, of whom 29 passed, including 1 osteopath, and 5 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1913)	91
Northwestern University	(1912)	87
University of Illinois	(1914)	79
University of Louisville	(1914)	87
Tulane University of Louisiana	(1897) 83; (1914)	86
Baltimore University	(1899)	75
Woman's Medical College of Baltimore	(1908)	82
Marion-Sims Medical College	(1898)	75.5
Columbia Univ. College of Phys. and Surgs.	(1911)	82
Jefferson Medical College	(1894)	77
Meharry Medical College	(1903) 75; (1913) 75.6, 85; (1914)	75, 75, 84
University of Tennessee	(1914)	76
Texas Christian University	(1914)	75
University of Texas	(1913)	84
Monterey School of Medicine, Nuova Leon	(1883)	75
National School of Medicine, Mexico	(1885) 75; (1899) 80; (1900) 83; (1902) 80.5; (1908) 81; (1909) 80.	
University of Freiberg, Baden	(1898)	84

FAILED College		
Meharry Medical College	(1912)	65
University of Tennessee	(1914)	71
Texas Christian University	(1914)	74*
National School of Medicine, Mexico	(1908) 62; (1911)	71

* Official information from this school states that this candidate is not a graduate.

Virginia December Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 15-18, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 27, of whom 23 passed, including 1 osteopath, and 4 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore	(1884)	75
Maryland Medical College	(1912)	76
University of Maryland	(1913)	75
University of Pennsylvania	(1913)	79
University of the South	(1899) 75; (1903) 77; (1906)	75
University of Vermont	(1914)	83, 86
Medical College of Virginia	(1913) 75, 76, 76; (1914) 76, 76, 77, 77, 78, 78, 79, 82, 85, 85.	

FAILED College		
Meharry Medical College	(1914)	56, 67
Medical College of Virginia	(1914)	67, 70

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
George Washington University	(1908)	Dist. Colum.
Atlanta College of Physicians and Surgeons	(1912)	Tennessee
Rush Medical College	(1891)	Texas
Louisville and Hospital Medical College	(1908)	W. Virginia
Baltimore Medical College	(1906) (1908)	Maryland
Johns Hopkins University	(1908)	Maryland
University of Maryland	(1866) Florida; (1907)	W. Virginia
Hahnemann Med. College and Hosp., Philadelphia	(1909)	Penna.
Jefferson Medical College	(1913)	N. Carolina
University of Pennsylvania	(1894) New York; (1900)	Penna.
Western Pennsylvania Medical College	(1907)	Penna.
Medical College of Virginia	(1912)	N. Carolina

Book Notices

Edema and Nephritis. A Critical, Experimental and Clinical Study of the Physiology and Pathology of Water Absorption in the Living Organism. By Martin H. Fischer, M.D., Eichberg Professor of Physiology in the University of Cincinnati. Second Edition. Cloth. Price, $5 net. Pp. 695, with 156 illustrations. New York: John Wiley & Sons, 1915.

There have probably been no two books issued in this country during recent years that have called forth such active, and at times acrid discussion, as the monographs entitled "Edema" and "Nephritis," the products of the researches into the application of physical chemistry to biologic problems by Professor Fischer. These two volumes now appear united in a single book, which includes the material of the first two brought up to date by the later investigations and reflections of the author, together with incidental attention to some of the attacks of his not too scanty or considerate critics. As the first of these books appeared in 1909, and the second in 1911, there has been time for the ideas advanced therein to have received due consideration, critical study and judicial weighing. We regret that we are obliged to state that most of the weighing which these ideas have received in both written articles and debates before societies have not been judicial, and that the criticism has rarely been founded on an adequate understanding of the principles or details of Fischer's contributions. He is fully justified in his complaint that there has been too much application of his conclusions without proper comprehension of the principles on which they are based, and too much destructive criticism based on a similar lack of comprehension, whereby his work has been injured equally by those who would accept it and by those who would not.

We believe that the difficulties which have beset the proper recognition (and by "proper" we reflect on both the overenthusiastic and the hyperskeptical) of Fischer's stimulating and important contribution to medical science and literature, are referable to two causes. One is the very small, if not complete lack of understanding of the principles of colloidal chemistry on the part of the profession, a defect that is entirely excusable in view of the fact that this is a new-born branch of physical chemistry, followed closely by but a mere handful of scientists in the entire world, of which group Professor Fischer is one of the most active members. The other is an unfortunate style of presentation, a cock-sureness, a disregard of scientific conventions, a controversial character, an irritable impatience with less active minds, which has undoubtedly led many who have approached Fischer's writings with an open mind to feel doubt as to his sincerity, his soundness of observation, and particularly as to his disinterestedness in interpretation of results and observation. These defects in presentation are, we believe, but natural characteristics of minds which can disregard authorities and accepted teachings completely enough to overthrow them when necessary, and to bring forth boldly new truths which are unpleasant in their revelation of our own errors. Professor Fischer believes firmly that the facts developed by colloidal chemistry make untenable "facts" and theories long held to be established, and says so frankly. If we accept this we must admit that we have made many mistakes in our practice, and that many of our best investigators and most-admired leaders have done much work in vain. This is naturally painful, but we must be prepared always to unlearn as well as to learn, even if the former is much more difficult.

It cannot be denied that the colloids forming most of our protoplasm have remarkable powers to hold water, and that the amount of water thus held varies greatly under different conditions. Accepting this positive principle, we cannot refuse to admit that it must have a profound influence on the amount of water present in the tissues of the human body. How then can we fail to be concerned with the application of this principle to normal and pathologic conditions? Fischer has developed this theme to a greater degree than any one else, and for this he is entitled to all credit. Whether the applicability is as broad as he states it to be, time alone

can tell; but as yet the critics of Dr. Fischer's statements have made sorry work of their attacks on his facts and deductions, however justly they may have attacked his presentation. No thinking man can read Fischer's book without being stimulated, if not convinced, and the method of presentation in this new edition seems to be admirably adapted to enable those unversed in colloidal chemistry (meaning practically every one) to understand his ideas, even if not competent to weigh them critically.

TEXT-BOOK OF MASSAGE AND REMEDIAL GYMNASTICS. By L. L. Despard. Second edition. Cloth. Price $4.50. Pp. 413, with 201 illustrations. New York: Oxford University Press, 1914.

In these unregenerate days of various drugless therapy sects, it is encouraging to find a text-book of massage by an author who fully realizes the ultimate dependence of such methods on a correct diagnosis and physiologic indications. In the introduction, this author says, among the rules to be observed by those practicing massage:

"No case should be undertaken except under the direction, or at least with the consent, of a doctor."

"Absolute loyalty and obedience to the doctor in charge of the case should be observed, and also strict reticence in regard to the patient's name and private concerns."

"Massage is contra-indicated in case of tumor, abscesses, aneurysms, in the early stages of thrombosis, tuberculous joints, diseases of the skin, acute inflammation of the kidneys, extreme fatty degeneration of the heart, acute neuritis, and in acute constitutional diseases."

Part I, which includes the first half of the book, is devoted to anatomy. The practical masseur should have a thorough knowledge of anatomy, especially as related to muscles and the surface relations of viscera. This is given adequately and supplemented by numerous excellent illustrations, many of them from the new Cunningham's Anatomy. In Part II, massage and gymnastics are concerned. In the classification the author adopts the Swedish method on which most massage and gymnastic systems are based. There is a long table of remedial gymnastics giving the various movements, the muscles and joints involved, the uses of the movements and the method of bringing them about. This section is fully illustrated, and almost any one should be able to carry out the manipulations suggested; but the author advises that before attempting any extensive work, massage should be studied under a competent teacher. Separate chapters are devoted to various diseases, to the use of lubricants, fomentations and bandages, and to electrical methods as supplementary to massage. The book is a worthy one and may be consulted with advantage by any physician not familiar with physical methods.

OBSTETRICAL NURSING. A Manual for Nurses and Students and Practitioners of Medicine. By Charles Sumner Bacon, Ph.B., M.D., Professor of Obstetrics, University of Illinois. Cloth. Price $2. Pp. 355, with 123 illustrations. Philadelphia: Lea & Febiger, 1915.

There is no field of medicine to which nursing is so closely related and so important as to obstetrics. This book is one which can be read with profit not only by the nurse but also by the practicing physician and student. The great experience of Dr. Bacon has enabled him to prepare a book which will fully meet the needs for which it was written. In the preliminary chapters the author gives a number of directions to the nurse who is to assume charge of cases, not as in the hospital under departmental heads, but on her own reliance. He realizes fully the importance of a sympathetic understanding by the nurse of the patient's condition. This series of introductory notes is so well worded and sympathetically written that it should be placed in the hands of all nurses, whether specializing in obstetrics or other departments of medical practice. The author then considers fully the anatomic structure and functions of the pelvis, the development of the fetus, the various changes of pregnancy; lactation, etc. There are also chapters on the early care of infants, infant feeding and diet. To the average midwife this work would afford a liberal education in the obstetric art which she assumes to follow. It is compact, well written and illustrated, and is a splendid presentation of the subject.

Medicolegal

Duties and Rights of Physicians Prescribing Intoxicating Liquors

(*State vs. Bates (Mo.), 172 S. W. R. 79*)

The Springfield (Mo.) Court of Appeals affirms a conviction of the defendant of issuing a prescription as a physician for intoxicating liquors to be used otherwise than for medicinal purposes. The court says that the sale of intoxicating liquors on a physician's prescription for medicinal purposes and the issuance of prescriptions by physicians calling for intoxicating liquors are restricted by the Missouri statutes within narrow limits. While alcohol and intoxicating liquors are recognized by the statutes as having medicinal value and the sale and use of same as medicine is permitted, yet the legislature has restricted both druggists and physicians to dispensing the same as medicine only. Section 5784 of the Revised Statutes of 1909 prohibits any physician from issuing to any person a prescription for intoxicating liquors, or for any compound of which such liquors shall form a part, to be used otherwise than for medicinal purposes. The physician issuing such a prescription must state therein that the intoxicant is a necessary remedy, and the law casts on him the duty of ascertaining in good faith that same is such necessary remedy. The physician cannot cast on the patient, suffering from some real or imaginary ailment, the privilege of diagnosing his own case and prescribing the proper remedy. The evidence shows that such patients often want the thing that has caused the ailment rather than one to cure it. If the patient knows both the cause and nature of his malady and the "necessary remedy" therefor, he has little need to consult a physician. If the physician acts in good faith in prescribing intoxicating liquors as a medicine, he is not to be punished for an error of judgment, nor because another physician differs with him as to its being a necessary remedy; nor is he liable in case the patient, without his knowledge, intends to use the liquors thus obtained as a mere beverage or for a purpose other than medicinal, and he cannot be convicted merely because the patient thereafter does so.

Kinds of Fractures—Dislocation of Testicle—Grounds for Allowance of Damages

(*Sang vs. City of St. Louis (Mo.), 171 S. W. R. 347*)

The Supreme Court of Missouri, Division No. 1, affirms a judgment for $4,000 in favor of the plaintiff for personal injuries alleged to have been caused by his being thrown out of, and under, a wagon by a defect in the street. The court says that the grave character of his injuries was not disputed, the testimony showing a complicated, compound, comminuted fracture of the left leg between the knee and the ankle. It also showed a resulting hernia, a lump hard by the groin, still existing at the trial. In addition thereto a singular thing happened, on the plaintiff's theory, namely, one of his testicles was driven by the accident up into his abdomen and remained there at the point of the hernia. The fact of the dislocated testicle was conceded. That it resulted from the accident was strenuously controverted by the defendant.

When the fracture was reduced at the outset the bones did not unite readily. It seemed the bones had been crushed somewhat, and this crushing made the fracture a "comminuted" one. Both bones of the leg were broken, hence the fracture was a "compound" one. It seemed that some of the flesh and ligaments got between the parts of this fracture. This fact was not discovered at the start and caused suppuration and failure to knit, thus giving rise to a "complicated" fracture.

Under the medical testimony, nothing short of an operation would put the dislocated testicle in the place nature designed for it; but there was no testimony tending to show that an operation was either necessary or advisable to protect or restore the integrity of its normal function, or that its present condition was dangerous to health, inconvenient, or made

or tended to make it *functus officio*. In this condition of the record, the court rules that the testimony left the question of the reasonable probability or necessity of medical services to replace the dislocated testicle a matter of merest conjecture. There was nothing to show it would be safe or better to replace it by surgical means; hence that part of an instruction on the measure of damages allowing a recovery for future medical attention could not well stand on this part of the record. Still the court by no means rules that the plaintiff was not entitled to recover substantial damages for the pain and suffering incident to the forceful dislocation of the part. It was ingeniously argued that the accident did not (and could not) cause the dislocation. The argument rested on the fact that the expert witnesses testified that they never read of or saw an incident of the kind; that the size of the usual canal, protected, as it is, by muscular rings, excluded the idea that the testicle could be driven by force from nature's sack up and into the abdomen along this canal; but this testimony was merely advisory. The court stresses the fact that there was testimony of lay witnesses, unimpeached save from these theories of the testifying physicians, that before the accident this man was normal in this particular and abnormal ever after. The credit due the testimony of lay witnesses directed to establishing facts as against the advisory theorizing of expert witnesses is always for the jury.

Coming to the reasonable necessity for medical assistance in the future arising from the hernia and the leg, the court holds that the testimony would sustain an allowance of damages therefor, notwithstanding that the physician, who had been long in prior attendance, had not attended the plaintiff for some time before the trial. To leave it to the jury is the best that the law can do, for no case calls for better testimony than the case admits of.

Not Liable for Services of Specialist

(Ryder vs. Perkins (Mass.), 107 N. E. R. 387)

The Supreme Judicial Court of Massachusetts sustains exceptions to a verdict rendered for the plaintiff, an eye specialist, in this action for services rendered to one of the defendant's children. The court says that the child's mother had obtained a divorce from its father, the defendant in this case. The decree in the divorce case provided that the father should pay ten dollars a week for the support of two children, "and further the expense of necessary medical attendance to be rendered to said children by Dr. Burley." By reason of the death of Dr. Burley, such medical attendance as was necessary for the children was being rendered by a Dr. Johnson, with the consent of both parents. Dr. Johnson was, as Dr. Burley had been, a general practitioner. The plaintiff, an eye specialist, was employed by the mother, on the recommendation of Dr. Johnson, to prescribe for the child before mentioned, who had some trouble with his eyes. It was stated in the exceptions that the employment of the plaintiff was unknown to the defendant father and without his request and sanction. It was not contended that Dr. Johnson had any greater authority to bind the defendant than he would have had if the decree had been modified and his name substituted therein for that of Dr. Burley. The decree in the divorce case gave the custody of the children to their mother. Thereafter the legal liability of their father for their support and care was dependent on and limited by the terms of that decree. If the decree had provided that the defendant should pay "the expense of necessary medical attendance to be rendered to said children," and stopped there, the plaintiff doubtless could recover, as admittedly the services he rendered were necessary, and the charges reasonable. But the decree expressly limited the defendant's liability to the payment for services that should be rendered by Dr. Burley. The agreement of the parties went no further than to substitute Dr. Johnson for Dr. Burley. There was no ambiguity or uncertainty about the meaning of the decree. Unless and until it was modified by the court the defendant was not legally liable for the services of a specialist, rendered without his consent.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, San Francisco, June 21-25.

Alabama State Medical Association, Birmingham, Apr. 20-23.
Am. Assn. Gen.-Urin. Surgs., White Sulphur Springs, W. Va., May 18-20.
American Association of Immunologists, Washington, May 10.
American Dermatological Association, New York, May 13-15.
American Gastro-Enterological Association, Baltimore, May 10-11.
Amer. Gynecological Society, White Sulphur Springs, W. Va., May 18-20.
American Medico-Psychological Assn., Fortress Monroe, Va., May 11-14.
American Neurological Association, New York City, May 6-8.
American Orthopedic Association, Detroit, May 6-8.
American Pediatric Society, Lakewood, N. J., May, 25-27.
American Psychopathological Association, New York, May 5.
American Urological Association, Baltimore, April 13-14.
Arkansas Medical Society, Little Rock, May 3-6.
Association of American Physicians, Washington, May 11-12.
Conf. of State and Prov. Boards of North America, Washington, May 14.
Connecticut State Medical Society, Hartford, May 19-20.
Florida Medical Association, De Land, May 12-14.
Georgia Medical Association, Macon, April 21-23.
Illinois State Medical Society, Springfield, May 19-20.
Iowa State Medical Society, Waterloo, May 12-14.
Kansas Medical Society, Kansas City, May 5-6.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Mississippi State Med. Association, Hattiesburg, May 11.
Missouri State Medical Association, St. Joseph, May 10-12.
Nat'l Assn. for the Study of Epilepsy, Old Point Comfort, Va., May 10.
Nebraska State Medical Association, Hastings, May 18-20.
New Hampshire Medical Society, Concord, May 19.
New York State Medical Society, Buffalo, April 27-29.
North Dakota State Medical Association, Bismarck, May 12-13.
Ohio State Medical Association, Cincinnati, May 4-6.
Oklahoma State Medical Association, Bartlesville, May 11-13.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.
Texas State Medical Association, Ft. Worth, May 4-6.
West Virginia State Medical Association, Huntington, May 12-14.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY (WEST BRANCH)

Meeting held March 16, 1915

DR. A. W. HAMMER in the Chair

NARCOTIC HABITUES AND THEIR TREATMENT

Relative Frequency of the Morphin and Heroin Habits

DR. CLIFFORD B. FARR: During the past summer my attention was called to the frequency of the heroin habit, and since the enactment of the Harrison law the number of admissions to the Philadelphia General Hospital of cases of morphin and heroin addiction has markedly increased. In the first sixty-eight days of 1915, eighty-six patients addicted to heroin were admitted, while in 1911 there was but one. In an analysis of 120 cases, ninety-one, or 75 per cent., were men, and twenty-nine, or 25 per cent., women. A large proportion were in the twenties. A few began the habit as early as the fifteenth year. In twenty-five persons the habit had persisted for less than one year; in twenty-three, from one to one and a half years; in forty-one from two to two and a half years; in eleven, for three years; in five, for four years, and in three, for five years. In not a single case had the drug been prescribed by a physician. In all but two cases the drug was taken as a snuff. In almost all cases ⅙ grain (1 centigram) tablets were used. The dose ranged from 4 to 32 grains daily. I have reason to believe that in the majority of these cases cocain was first used, although its use as a habit was denied. Twenty-five of the 120 heroin patients used morphin either before adopting heroin or off and on as a substitute for it. A number had substituted one drug for the other to "break the habit."

In an analysis of 176 cases of the opium habit in other forms, there was a fair proportion of middle aged and elderly persons. In many cases the morphin habit was taken up merely as an indulgence. In other cases it was attributed to medication. Briefly stated, the heroin addiction is a negative pleasure, the cocain, a positive one. As a rule, the withdrawal symptoms are not so severe in heroin as in morphin habitués, but the difference is one of degree rather than of character. Heroin was introduced into practice

about 1898 (Dresser) and was recommended for the relief of pain, and particularly for respiratory conditions. It was repeatedly emphasized by reporters that it was not a habit-producing drug, and in France it was lauded as a cure for the morphin habit. As a result, a number of cases were reported by various men traceable to physicians. Phillips, as far as I can discover, was the first medical writer to describe the snuffing habit as it then existed in the "tenderloins" of the Middle West. Blanchard, in 1913, was the first to notice the prevalence of the habit among soldiers, to whom it was known as "happy dust."

My conclusions from a study of these cases as to the cause of the increase in the heroin habit are: The severe laws enacted against cocain two or three years ago favored the introduction of a drug which might be taken in the same way, either with or without the cocain. In the former case it tended to overcome some of the unpleasant features of the cocain habit. The suppression of opium dens by the police had a similar though a less marked effect. Those addicted to the drug seemed to have a proselyting zeal which is difficult to account for, except in the case of those who were venders. The psychology of the "quarter" and the peculiar ideas of "habit" persuaded many persons that they had an addiction when they clearly had not as yet acquired it. The business was well organized and included manufacturing chemists, middlemen, druggists and venders. The epidemic arose quite independently of physicians and until recently was unknown to them.

Frequency of the Cocain Habit

DR. C. G. STEINMETZ, JR.: My observation is based on a series of fifteen cases in which the habit had been acquired by men employed where the drug was manufactured. The series represents a particularly difficult group of patients to treat successfully because of their occupation. The ages of the men ranged from 23 to 40 years, and the daily quantity taken, from 20 to 60 grains. The method of taking was solely by snuffing, it probably being the most convenient. In all of these cases there was a neuropathic tendency or inheritance. As long as they had remained, constitutionally speaking, above par, they were able to combat this habit; but owing to the nature of inside positions they soon became anemic and were easy victims. This emphasizes the fact that employers should hire only those individuals who are in the best physical condition, and assume the responsibility of keeping them in the best of health. All of these patients had previously indulged in taking alcohol in its varied forms, but had acquired no other drug habit. Circumstances in this group made possible the withdrawal of the drug. Twelve patients developed acute symptoms. Hallucinations of sight and hearing, paresthesia (foreign bodies under the skin), epileptiform convulsions, acute delusional insanity and Cheyne-Stokes respirations were among some of the rarer symptoms encountered. In the treatment, cocain was withdrawn instantly and the patients recovered. Those suffering with delusional insanity, however, retained their delusions after the delirious state had disappeared.

Management of Drug Habitués

DR. S. D. W. LUDLUM: In the cure of the drug habit it would seem that there must be a change of the bodily condition so that the patient can use his own will. There are several kinds of physical and mental treatments of morphinism and alcoholism. At Blockley I have seen many patients cured by scopolamin, but the majority relapsed and returned. I think the Towne-Lambert treatment is better; but no treatment is of value without something to sustain the moral nature after the treatment. People are made up of the sympathetic and autonomic nervous systems, and are dominated by one or the other of these systems. Eppinger and Hess have worked this matter out fully. Paralyze the sympathetic nervous system with morphin and the patient will show predominance of vagotonic symptoms, with the whole train of symptoms recognized as morphin symptoms. In the Towne-Lambert treatment, the vagotonic symptoms are held in check by the administration of belladonna, and the sympathetic system is whipped up by xanthoxylin and hyoscyamus. As soon as the physical tolerance of the belladonna is reached, the sympathetic and vagotonic systems are in balance. It has been stated that the only way to change the desire of the drug habitué is to change the physiology. If the law governing the use of drugs is active, any treatment will answer, but the Towne-Lambert method is effective and gives the greater comfort to the patient than any method I have used. If, however, the law is inactive, it is urged that such habitués should be kept under control and away from the city for six months.

DISCUSSION

DR. S. D. INGHAM: It is the exceptional case that is traced to the negligence of the doctor. It is, as a rule, the weakling, the low member of society who develops the habit. The withdrawal symptoms are definite symptoms of illness, increasing with the severity of the case. All these symptoms are not due to the morphin toxemia, but in part to the interference with metabolism, giving us a complicated physical condition in addition to the nervous affection. The Towne-Lambert treatment is doubtless based on sound physiologic reasoning. I have seen cases that have responded to it nicely, and I have seen cases that have not. In the after-treatment there must be the establishment of good habits, for after the desire has been changed and the physical condition improved, merely a slight indulgence will cause a return of the habit.

DR. H. C. WOOD, JR.: While I do not wish to criticize the efficiency of the Towne-Lambert treatment, I cannot assent to Dr. Ludlum's explanation of its modus operandi. It is not established that there is any real antagonism between the sympathetic and autonomic systems; moreover, not all the effects of morphin can be attributed to a paralysis of the sympathetic system. The statement that hyoscyamus is a stimulant to the sympathetic system is contrary to all accepted opinions of pharmacologists. It contains two alkaloids, hyoscyamin and scopolamin. Both of these are paralyzants to the autonomic system; the latter comparatively feeble, but the former more powerful than atropin. The effects of this prescription are much more reasonably attributed to the action of the solanaceous group on the brain. The beneficial influence of atropin and scopolamin in drug addictions, not only morphin but also alcohol, has been recognized for many years. The beneficial results of the Towne treatment are due to the free catharsis which puts the digestive tract into good condition and gets rid of any possible toxic substance whose absorption from the alimentary canal might exercise an injurious effect, and the belladonna and hyoscyamus by their action on the cerebrum relieve the extreme nervousness caused by the withdrawal of the accustomed narcotic.

DR. C. B. FARR: Morphin is at first eliminated almost quantitatively by the intestinal tract, but after habituation this no longer holds true. It is believed, therefore, that there is some destructive power acquired by the body cells which causes the disintegration of the drug. This is not analogous to immunity. Hospital authorities were forewarned that there would be a flood of these cases when the Harrison law went into effect and made ample provision for their prompt treatment. Practically all cases were given the Lambert treatment. After two weeks, when the treatment was completed, the patients seemed to have no desire for the drugs. A few cases were treated in the medical wards by withdrawal of the drugs, purgation, enteroclysis, etc., with about the same immediate results. Many patients were sent to a convalescent hospital, and an attempt was made to keep the rest under supervision.

DR. S. D. W. LUDLUM: It is sometimes difficult to decide whether symptoms result from stimulation of the vagotonic system, or inhibition of the sympathetic system. The authority which I obtained was from good pharmacologic sources, more or less interpreted, however, by neurologists. Symptoms resulting from toxins and antitoxins can be interpreted only through the nervous system. I feel that I must challenge the statement of Dr. Wood, that the effect of scopolamin is entirely on the brain. We, as neurologists, do not believe it.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March, XVII, No. 3, pp. 245-401

1 Histogenesis of Selachian Liver. R. E. Scammon, Minneapolis.
2 *Development of Thymus in Pig. J. A. Badertscher, Ithaca, N. Y.
3 Mitochondria (and Other Cytoplasmic Structures) in Tissue Cultures. M. R. Lewis and W. H. Lewis, Woods Hole, Mass.

2. **Development of Thymus in Pig.**—The thymus of the pig Badertscher found has an ectodermal entodermal origin. The respective origin of each segment is as follows: 1. The superficial thymus, which is a derivative of the cervical vesicle, has a purely ectodermal origin. It is a constant structure and, therefore, forms an integral part of the organ. 2. The connecting band is also a derivative of the cervical vesicle, and has, therefore, a purely ectodermal origin. In the majority of embryos it persists to birth but may be absent either on one or on both sides. 3. The thymus head, in which is lodged the parathyroid III, is formed by a fusion of a portion of the cervical vesicle to the anterior end of the epithelial diverticulum derived from the third pharyngeal pouch. It has, therefore, an ectodermal entodermal origin. 4. The intermediary and cervicothoracic cords, and the midcervical and thoracic segments are derived wholly from the epithelial diverticulum of the third pharyngeal pouch and have, therefore, a purely entodermal origin.

American Journal of Diseases of Children, Chicago

April, IX, No. 4, pp. 261-352

4 *Influence of Posture on Digestion in Infancy. C. H. Smith and L. T. LeWald, New York.
5 *Megacolon and Microcolon. L. Porter and A. Weeks, San Francisco.
6 Study of Nutritive Value of Some Proprietary Infant Foods. II. As Milk Modifiers. R. Wheeler, Urbana.
7 Studies on Infant Metabolism and Nutrition. A. M. Courtney and H. L. Fales, New York.
8 *Tuberculosis as Disease of Newborn. C. G. Grulee and F. Harms, Chicago.

4. **Influence of Posture on Digestion in Infancy.**—Smith and LeWald summarize their study of this subject as follows: Air is swallowed with the food by many if not by all infants. The erect posture favors eructation of this air; the horizontal prevents it. The horizontal posture by preventing eructation, is an important cause of vomiting, colic, indigestion and disturbed sleep. The following routine should be followed in feeding every infant: Before feeding the infant should be held upright to allow the escape of any gas present in the stomach. Immediately after feeding the infant should be again held up against the shoulder of the mother or nurse. He may be patted on the back or gentle pressure may be made on the epigastrium to encourage eructation of the swallowed air. It may be necessary to interrupt the feeding one or more times to hold the child upright to eructate, in cases in which an excessive amount of air is swallowed. After the gas is eructated the child should be put down to sleep, preferably in the prone position and with the head of the bed raised. If restless he may be taken up after a short time to see if there is more air in the stomach. Habitual tongue-suckers need to be held up several times between feedings, as they constantly swallow air. Other suckling habits must be prevented by mechanical restraint. Feedings should be given at as long intervals as possible, depending on the gastric capacity and the total daily requirements. A feeding should not be taken too slowly. From five to ten minutes are enough as a rule; fifteen minutes should be the maximum time at bottle or breast. The importance of posture and the wrong teaching given to physicians and nurses in the past warrant the emphasis laid on so simple a matter.

5. **Megacolon and Microcolon.**—Porter and Weeks believe that megacolon is a more common deformity than is generally thought. The symptoms are present from birth. They are: An enlarged abdomen, visible intestinal peristalsis, obstinate constipation, later, anemia and toxemia from fecal retention, accompanied sometimes by recurring attacks of intestinal obstruction. Pathologic hypertrophy with dilatation may include the entire intestine, or the dilatation may cease at the sigmoid, which will be hypertrophied, but with a narrow lumen. That isolated segments of the large intestine may be affected while most of the intestine remains intact and healthy is to be doubted. Fatal collapse can occur from fecal obstruction, and such obstruction may be brought on by injudicious attempts to empty the bowel. The one measure that promises relief is operative procedure, which may be utilized in either two or three stages: colotomy, with artificial anus (this cannot be done too early in the child's life or in the course of the case), later excision of the entire large intestine with anastomosis from the ileocecal region into the rectum; or anastomosis may be done as a second step and resection of the entire colon be made a third operation.

8. **Tuberculosis as Disease of Newborn.**—Grulee and Harms report the case of a child born of a mother with supposedly a healed tuberculosis, whose only subjective symptom was a severe leukorrhea of unknown cause. The mother survived the child (an unusual thing in these cases) many months at least, and probably is still living. A baby born apparently at term and apparently healthy, had as early as fifteen hours after birth a high temperature, which continued irregularly until death. There was a distinct tendency to regurgitation, and on the seventh day generalized convulsions developed, which continued up to twenty-four hours before death. Death occurred on the eleventh day. On physical examination the child showed only an enlarged liver and enlarged spleen. At necropsy a generalized tuberculosis affecting most markedly the abdominal organs, and especially the periportal lymph-glands, liver and spleen was found. The tuberculosis was miliary in type, but the stage of the tubercles suggests that it had already begun *in utero*. Many tubercle bacilli were found in all sections of tuberculous areas.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, LXXI, No. 3, pp. 385-560

9 *Resources for Giving Prenatal Care. A. B. Emmons, Boston.
10 *Teaching Obstetrics. W. W. Chipman, Montreal, Canada.
11 *Relation of Gynecologic Surgery to Bad Obstetrics. E. Reynolds, Boston.
12 *Need of Hospitals for Maternity Cases. E. P. Davis, Philadelphia.
13 Scopolamin Amnesia in Labor. W. F. B. Wakefield, San Francisco.
14 Limits of Safety in Blood Pressure Changes. D. Riesman, Philadelphia.
15 Extra-Uterine Pregnancy. Report of Three Unusual Cases. T. S. Welton, Brooklyn.
16 Clinical and Pathologic Features of Chorio-Epithelioma Malignum. Report of Three Cases. A. A. Strasser, Arlington, N. J.
17 Surgical Treatment of Posterior Uterine Displacements with Various Methods Past and Present. H. D. Meeker, New York.
18 Needs and Uses of Abdominal Cesarean Section. W. M. Brown, Rochester, N. Y.
19 Abdominal Section without Use of Retractors. G. Chandler.
20 Vertex Occipitoposterior Positions with Special Reference to Scanzoni Maneuver. A. H. Bill, Cleveland.
21 Vaginal Cesarean Section for Eclampsia and Other Conditions. I. W. Potter, Buffalo.
22 Treatment of Eclampsia. A. P. Leighton, Jr., Portland, Me.
23 *Energy Requirement of New-Born. H. C. Bailey and J. R. Murlin, New York.

9. Abstracted in The Journal, Jan. 2, 1915, p. 78.

10, 11 and 12. Abstracted in The Journal, Jan. 2, 1915, p. 79.

23. **Energy Requirement of New-Born.**—According to analyses reported by Bailey and Murlin human colostrum on the second and third days of the puerperium has the following composition: Protein, 2.3 per cent.; fat, 2.9 per cent.; milk sugar, 7.1 per cent., making a physiologic heat value of 650 calories per liter. It is not, however, until the fifth day that sufficient breast secretion to supply the require-

ment of the new-born for combustion alone, to say nothing of growth, can be counted on. Statistical studies made by the authors show that supplementary feeding on new-born infants from the first day onward with a formula somewhat resembling colostrum in composition diminishes the initial loss in weight, accelerates the return to birth weight, and has no unfavorable effects. The respiratory quotients of two new-born children examined at six hours of age indicate that the child has at birth some carbohydrate available for combustion. By the end of the first twenty-four hours, however, this supply is exhausted and the child has reached practically a pure fat combustion. If food is not supplied soon after this a starvation acidosis is likely to develop.

The energy requirement of the new-born kept comfortably warm and sleeping quietly may be placed tentatively between 1.7 and 2.0 calories per kilogram an hour, the lower figure for a very fat (10 pound) child and the higher for a thin (6 pound) child. Even vigorous crying does not raise this figure more than 40 per cent.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

March, II, No. 9, pp. 553-612

24 Observations in Tropical Pathology, II. Three Frequently Silent Lesions: Gastroduodenal Ulcers, Gallstones and Pancreatitis. Their Relative Incidence in Panama Canal Laborers as Disclosed by Autopsy. H. C. Clark, Ancon, Canal Zone.
25 Chaparro Amargosa in Treatment of Amebic Dysentery. P. I. Nixon, San Antonio, Tex.
26 Report of Antimalarial Campaign at Cuyamel. N. Barlow, Cuyamel, Honduras.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, XXIII, No. 4, pp. 755-970

27 Anatomic and Clinical Relations of Sphenoid Sinus to Cavernous Sinus and Third, Fourth, Fifth, Sixth and Vidian Nerves. G. Sluder, St. Louis.
28 Value of Eye Symptoms in Diagnosis of Obscure Chronic Sinus Disease. L. C. Peter, Philadelphia.
29 Leprosy of Upper Respiratory Tract; Report of Case. J. Horn, New York.
30 Dynamics of Nasal Development — Its Bearing on Resection of Septum. W. W. Carter, New York.
31 Cases of Aural Infection with Streptococcus Capsulatus. C. E. Perkins, New York.
32 Histologic Pathology of Nose. J. C. Beck, Chicago.
33 Sociologic Aspect of Deafness, Congenital or Acquired in Early Life, with Suggestion for Betterment Through Indirect Effort. H. B. Young, Burlington, Ia.
34 Etiology and Prophylaxis of Tuberculous Laryngitis. J. Dworetzky, Otisville, N. Y.
35 Influence of Nose on Eye Affections as Evidenced by Case of Bilateral Blindness and One of Unilateral Scintillating Scotoma Cured by Operations on Ethmoid Cells. H. W. Loeb, St. Louis.
36 Clinical Significance of Bacteremia. J. E. Sheppard, Brooklyn.
37 Case of Septic Infection of Parotid Glands Resulting Fatally. F. E. Hopkins, Springfield.
38 Two Cases of Extensive Fibromyxoma of Nasopharynx. J. E. Brown, Columbus.
39 Case of Papilloma of Larynx Treated by Radium. F. E. Hopkins, Springfield.

Arkansas Medical Society Journal, Little Rock

March, XI, No. 10, pp. 231-253

40 Retrodisplacement of Uterus. R. C. Carlin, Fort Smith.
41 Report of Cases. Foreign Body in Bronchus; Abscess of Ear; Brain Abscess. R. H. T. Mann, Texarkana.
42 Few Essential Hints to Successful Surgery. C. S. Holt, Ft. Smith.
43 Some Things to Be Remembered by General Practitioner. G. E. Cannon, Hope.
44 Roentgen Ray in Diagnosis and Treatment of Fractures. J. P. Runyan, Little Rock.
45 Relief of Uterine Inertia. S. W. Douglas, Eudora.

Boston Medical and Surgical Journal

March 25, CLXXII, No. 12, pp. 429-466

46 Rôle of State Sanatorium in Tuberculosis Problem. E. Washburn, Rutland.
47 Diagnosis and Treatment of Pulmonary Tuberculosis. B. T. Crane, Rutland.
48 *Mortality after Prostatectomy. B. Tenney and H. M. Chase, Boston.
49 Study of Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. T. W. Harmer, Boston.

48. **Mortality After Prostatectomy.**—The greatest danger in the operation of prostatectomy according to Tenney and Chase who studied 229 fatal results is death from uremia or from conditions closely associated with it (suprapubic operation, 22 per cent.; perineal, 31 per cent.). The percentage of deaths from uremia among the cases operated within two days was 37 per cent. while the percentage of deaths from the same cause among patients who were observed long enough to have functional tests made was 19 per cent. The second great danger in this operation is death from hemorrhage and shock (suprapubic operation, 21 per cent.; perineal, 28 per cent.). The third serious fatality is embolism (suprapubic operation, 20 per cent.; perineal, 11 per cent.).

Bulletin of Lying-In Hospital of City of New York

February, X, No. 1, pp. 1-78

50 Report of All Abdominal Cesarean Operations Performed in Service of Lying-In Hospital. A. B. Davis, New York.
51 *Cultivation of Human Tissue in Vitro. J. R. Losee and A. H. Ebeling, Brooklyn.
52 *Cultivation of Human Sarcomatous Tissue in Vitro. J. R. Losee and A. H. Ebeling, Brooklyn.
53 Scopolamin-Narcophin Seminarcosis in Labor. J. A. Harrar and R. McPherson, New York.
54 Two Cases of Appendicitis Complicating Pregnancy. J. W. Markoe, New York.
55 Effect of Subsequent Labors of Operations for Uterine Displacements. G. W. Kosmak, New York.
56 Treatment and End Results of Birth Fracture of Femur. Report of Five Cases. E. D. Truesdell, New York.
57 Fetal Osteochondritis. J. R. Losee, Brooklyn.
58 Report of Work Done in Babies' Class from October 1, 1913, to September 30, 1914. E. L. Coolidge, New York.
59 Case of Bacillus Mucosus Capsulatus Septicemia in Infant. J. R. Losee, Brooklyn.
60 Case of Extraperitoneal Cesarean Section. J. W. Markoe, New York.

51. **Cultivation of Human Tissue in Vitro.**—A strain of human connective tissue was kept in a condition of active life *in vitro* for more than two months by Losee and Ebeling. The culture medium consisted of human blood plasma, extract of adult or fetal tissues and Ringer's solution.

52. **Cultivation of Human Sarcomatous Tissue in Vitro.**—The medium employed in these experiments was composed of equal parts of normal human plasma, Ringer's solution and varying quantities of extract. The tissues employed were obtained from recently excised sarcomatous growths and cultures were made about one and a half hours after excision. The primitive cultures were made by putting small, thin fragments of this tissue into the medium. After coagulation the cultures were immediately placed in the incubator and incubated at 38 C. for twenty-four, forty-eight and seventy-two hours, the time of passage into fresh medium being governed by conditions which developed in the culture. Before the fragments in cultures were transferred into fresh medium they were washed in Ringer's solution for about one minute. The results obtained show that it is possible to cultivate *in vitro* fragments of human sarcomatous tissue for several generations, and that the method employed may prove of value in the study of the growth of human malignant tumor.

Florida Medical Association Journal, Jacksonville

March, I, No. 9, pp. 257-288

61 General Sanitary Management. J. Y. Porter, Jacksonville.
62 Toxemias of Pregnancy. F. J. Waas, Jacksonville.

Indiana State Medical Association Journal, Fort Wayne

March, VIII, No. 3, pp. 113-162

63 Nitrous Oxid Anesthesia in Obstetrics. A. E. Guedel, Indianapolis.
64 *Sarcoma of Ovary. M. F. Porter, Fort Wayne.
65 *Modern Methods in Diagnosis and Treatment of Cerebrospinal Meningitis. W. D. Hoskins, Indianapolis.
66 Gas Bacillus Infections. J. P. Simonds, Chicago.

64. Abstracted in THE JOURNAL, Jan. 31, 1915, p. 405.
65. Abstracted in THE JOURNAL, Oct. 24, 1914, p. 1500.

Iowa State Medical Society Journal, Des Moines

February, V, No. 2, pp. 41-88

67 Problems of Medical Prognosis. W. L. Bierring, Des Moines.
68 Septic Complications in Syphilis, Tuberculosis and Cancer. W. J. Mayo, Rochester, Minn.
69 Experimental Focal Infections and Their Bearing on Clinical Medicine. R. H. Babcock, Chicago.
70 Mouth as Source of Systemic Infection. F. T. Breene, Iowa City.
71 Medical Management of Uncomplicated Peptic Ulcer. J. T. Strawn, Des Moines.

Journal of Nervous and Mental Disease, Lancaster, Pa.

March, XLII, No. 3, pp. 129-192

72 *Progressive Vagus-Glossopharyngeal Paralysis with Ptosis. Report of Cases. E. W. Taylor, Boston.
73 *Puncture of Corpus Callosum with Special Reference to Its Value as Decompressive Measure. C. A. Elsberg, New York.
74 Pulmonary Complications of Apoplexy. P. C. Knapp, Boston.

72. **Vagus-Glossopharyngeal Paralysis with Ptosis.**—A clearly defined disease or symptom complex is described by Taylor consisting of ocular ptosis and paralysis of deglutition coming on after the fiftieth year, and leading to death without further involvement of the nervous system. Taylor believes that the affection is to be classed among the family hereditary diseases, as shown by the fact that it has occurred in two generations, in the second affecting all but one of those who reached the age of 50 years. The disorder is peculiarly remarkable in that although hereditary in type, it has not been known to occur in early life, and must therefore be regarded as superinduced in predisposed persons by conditions arising in the degenerative period of life. The justification for regarding the affection as a disinct entity lies in the fact that so far as ascertainable it occurs in precisely the same form in all persons affected and also invariably in the declining years of life.

73. **Puncture of Corpus Callosum.**—During the past two years Elsberg has performed puncture of the corpus callosum 37 times. All of the patients recovered from the operation without any bad after effects. Seven children who suffered from the non-obstructive variety of hydrocephalus. Elsberg has used this method 30 times instead of or combined with decompressive craniotomies, and in a considerable number of patients has seen great improvement follow the operation. In more than one-half of the patients, an immediate improvement occurred; the headache was relieved, the swelling of the optic nerve heads decreased and sometimes subsided entirely. In several cases the operation was done without any anesthesia because the patients were in stupor or coma. In two of these the patients became conscious and answered questions before they left the operating table. One patient had advanced symptoms of amid brain tumor. He was so much relieved for more than six months that he was able to return to his work. The headache and swelling of the disks disappeared rapidly, and ocular palsies subsided. In almost all of the patients some improvement occurred. In the patients in whom no increase of ventricular fluid was found there were of course no change in their condition, and other decompressive methods had to be resorted to. Elsberg regards the operation as being only a palliative or temporizing measure, and states that the radical removal of the tumor should always be done if that be possible. As a palliative method, however, he highly recommends this operation.

Laryngoscope, St. Louis

February, XXV, No. 2, pp. 65-128

75 Exploratory Opening of Sphenoid Sinus. C. P. Grayson, Philadelphia.
76 Collapse of Alae Nasi, Its Etiology and Treatment. W. C. Batroff, Philadelphia.
77 Plastic Operation for Dislocated Columnar Cartilage of Nose. E. L. Warren, St. Paul, Minn.
78 Posterior Nasal Operation by Means of Nasopharyngoscope. C. A. Gundelach, St. Louis.
79 Tumors of Uvula. Report of Case of Papilloma of Uvula. P. S. Stout, Philadelphia.
80 Angioma of Uvula. M. A. Goldstein, St. Louis.
81 Cavernous Angioma of Tongue. H. Arrowsmith, Brooklyn.
82 Scopolamin in Nose and Throat Operations. M. Metzenbaum, Cleveland.
83 Streptococcus Viridans in Its Relation to Infections of Upper Respiratory Tract. R. L. Cecil, New York.
84 Treatment of Hay Fever by Active Immunization. R. A. Cooke, New York.

Medical Record, New York

March 27, LXXXVII, No. 13, pp. 505-546

85 *Clinical Significance of Auricular Fibrillation. H. Schoonmaker, Clifton Springs.
86 Conception of Sexuality Assumed by Freudian School. M. Solomon, Chicago.
87 *New Operation for Fistula in Ano. S. J. Blumenthal, Brooklyn.
88 Anosognosia and Anosodiaphoria. E. M. Auer, Philadelphia.
89 Roentgen Ray as Ideal Local Remedy for Eczema. I. W. Ballard, Opelika, Ala.
90 Results of Wassermann and Luetin Tests at Naval Prison, Portsmouth, N. H. G. E. Thomas, U. S. Navy.
91 Significance of Acids and Alkalies in Organic World. D. S. Kanstoroom, Washington, D. C.

85. **Auricular Fibrillation.**—Auricular fibrillation, Schoonmaker says, is the common cause of cardiac arrhythmia, characterized by complete irregularity. Auricular fibrillation is of frequent occurrence, especially in mitral stenosis and in the senile heart. Auricular fibrillation should be recognized without the aid of recording instruments. Digitalis is of almost specific value in controlling the heart rate in auricular fibrillation and is of but little value in tachycardia or arrhythmia from other causes. Angina pectoris may be induced by digitalis. Therefore in auricular fibrillation, especially in elderly people, it should be given cautiously, yet to effect.

87. **New Operation for Fistula in Ano.**—The principle of the operation described by Blumenthal is to remove the granulation tissue and to get primary union by collapsing the fistula at rest without mutilating the skin or sphincter in comparatively young fistulae.

New Orleans Medical and Surgical Journal

March, LXVII, No. 9, pp. 749-822

92 Splenic Anemia. J. D. Weis, New Orleans.
93 Some of Most Common Diseases of Cervix Uteri. S. M. D. Clark, New Orleans.
94 Emetin Treatment of Pyorrhea. E. S. Talbot, Chicago.

New York Medical Journal

March 27, CI, No. 13, pp. 601-652

95 Sex Gland Implantation. (To be Concluded.) G. F. Lydston, Chicago.
96 Static Dislocation of Hip; Sequel of Severe Burn. D. D. Ashley, New York.
97 Immunization in Typhoid Outbreak in Sloane Hospital for Women. M. L. Ogan, New York.
98 An Improved Technic for Blood Counts. H. J. Hartz, Philadelphia.
99 Recent Applications of Radium Emanations and Radium Water. S. G. Tracy, New York.
100 Diseases of Ear and Upper Respiratory Tract Among American Factory Workers. O. Glogau, New York.
101 Extraction of Cataractous Lens in Its Capsule. H. F. Hansell, Philadelphia.
102 Continuous Drop Irrigation from Thermos Bottle. N. G. Bozeman, New York.
103 Nature and Pathogenesis of Epilepsy. L. P. Clark, New York.

New York State Journal of Medicine

March, XV, No. 3, pp. 85-128

104 Practical Considerations of Blood Cultures. W. Lintz, Brooklyn.
105 Use of Bronchoscope in Direct Examination of Larynx, Trachea, Bronchi and Esophagus. P. Schoonmaker, New York.
106 Contract Medical Practice. A. T. Lytle, Buffalo.
107 Dietetic Malnutrition in Infants and Its Treatment. F. E. Brundage, Buffalo.
108 Our Chosen Profession. L. R. Mellor, Syracuse.

Pennsylvania Medical Journal, Athens

March, XVIII, No. 6, pp. 417-500

109 Observations on Epilepsy Chiefly from Roentgenologic Standpoint. T. M. T. McKennan, G. C. Johnston and C. H. Henninger, Pittsburgh.
110 *Observations on Some of Effects of General Continuous Flow Bath. C. L. Palmer, Pittsburgh.
111 Local Anesthesia, with Special Reference to Nerve-Blocking. P. G. Skillern, Jr., Philadelphia.
112 Narcotic Anesthesia. G. M. Astley, Philadelphia.
113 Spinal Anesthesia. W. A. Steel, Philadelphia.
114 Some Methods and Devices in Correction of Nasal Septum That Make for Success. G. M. Marshall, Philadelphia.
115 Trifacial Neuralgia from Nasal and Accessory Sinus Disease. G. B. Jobson, Franklin.

116 Cases of Foreign Bodies within Eyeball Orbit. J. C. McAllister, Ridgway.
117 Thrombosis of Lateral Sinus. Report of Four Cases. J. R. Simpson, Pittsburgh.
118 Report of Commission on Conservation of Vision. W. C. Posey, Philadelphia.
119 Insanity and Its Present Day Treatment. G. W. McCafferty, Jr., Waymart.
120 Surgical Treatment of Gastroptosis. J. M. Wainwright, Scranton.
121 Dilated Cecum. R. T. Wall, Scranton.

110. **Some of Effects of General Continuous Flow Bath.**—Because of the constant and fairly uniform reduction in systolic blood pressure which the hot continuous flow bath produces Palmer claims that it is a reliable adjunct in the treatment of any of the chronic diseases in which there is high blood pressure. It also acts as a powerful diaphoretic which seems to be of some value in these cases. It is undoubtedly valuable in the treatment of most any form of delirium, having in the majority of cases a marked sedative effect. The most important effect of the cold continuous flow bath is the reduction of fever, therefore, it is a valuable aid in the treatment of any of the acute infections accompanied by a high temperature. It never seems to shock the patients as the sudden application of ice-cold water does, and it produces nearly as marked and persistent effect, not only on temperature, but in the relief of nervous symptoms also.

Philippine Journal of Science, Manila

September, IX, No. 5, pp. 381-464

122 Malaria in Philippine Islands. E. L. Walker and M. A. Barber, Manila.
123 Malaria in Philippine General Hospital, Manila, During Fiscal Year, 1913. D. G. Willets, Manila.
124 *Chief Intestinal Lesions Encountered in One Thousand Consecutive Autopsies in Manila. B. C. Crowell, Manila.

124. **Intestinal Lesions Encountered in One Thousand Consecutive Autopsies.**—In a series of 1,000 consecutive autopsies in Manila, performed during eighteen months, aside from the incidence of intestinal parasites and tumors and the lesions in bubonic plague, intestinal lesions have been encountered in 292 cases. In this series Asiatic cholera (on account of an epidemic occurring during this period) stood first numerically. Second in importance was intestinal tuberculosis, and attention has been drawn to the possibility of the occurrence of dysenteric symptoms in this condition and to the perforation of intestinal ulcers in three cases. Typhoid was present more frequently than either entamebic or bacillary colitis, and these typhoid cases showed a high percentage of perforations (30 per cent.) and hemorrhages (12 per cent.), all of the cases being among Orientals. Entamebic and bacillary colitis have been encountered with less frequency than the preceding diseases, and have presented many of the possible complications and sequelae. Liver abscesses occurred in 29 per cent. of the entamebic cases, and in two cases the intestines had perforated. Bacillary colitis was present more frequently in children than in adults. Nine cases of duodenal ulcers were encountered, six of which had perforated, and fifteen cases of peptic ulcer of the stomach occurred in the same series. Severe anemia and symptoms referable to the gallbladder were prominent in some of the cases of duodenal ulcer. Unclassified probably non-specific inflammatory lesions of the intestines, especially in infants, occupy an important place, and offer a promising field for further etiologic study.

South Carolina Medical Association Journal, Anderson

March, XI, No. 3, pp. 69-102

125 Pharmacology of Scopolamin. J. H. Gibbes, Columbia.
126 Achondroplasia. W. A. Smith, Charleston.
127 *Twenty-Seven Cases of Penetrating and Perforating Gunshot Wounds of Abdomen; Three Deaths. L. Guerry, Columbia.
128 Fractures of Long Bones. B. A. Henry, Anderson.

127. **Penetrating and Perforating Gunshot Wounds of Abdomen.**—Twenty-seven cases with three deaths are cited by Guerry. The youngest patient operated on was 7 years old, the oldest 57 years old. The average length of time that elapsed between the shooting and operation was between eight and nine hours. The earliest case operated on was three hours, and the latest thirty-six hours after injury. The smallest number of perforations was two and the largest twenty-two. The average number of perforations for the entire series about nine.

In five patients the injury was confined to the upper abdomen (above the umbilicus) and in three other patients both lower and upper abdomen were involved. Of the five patients in which the upper abdominal cavity was the seat of injury, once there were two perforations only in the transverse colon; three times colon, stomach and liver were injured, and once spleen and stomach. Of the three in which both lower and upper abdomen was involved, twice besides three perforations to the small intestines, both colon and stomach were injured and in one patient with two small intestinal holes both colon and spleen were penetrated. In the remaining nineteen cases the projectile did not enter the upper abdomen.

The ureter was divided low down in one case and Guerry has been fortunate enough not to have had any of the great trunk vessels injured, except in two patients that died. In about ten patients there was a very serious hemorrhage from the injured mesenteric vessels. The element of shock was very much more marked in the white than in the colored patients; in more than half of the colored patients the amount of shock present was a negligible factor, while only three out of twelve white patients were not in a condition of serious shock, there being twelve white and fifteen colored patients.

Texas State Journal of Medicine, Fort Worth

March, X, No. 11, pp. 443-490

129 Open Operation in Treatment of Old Standing Dislocation of Shoulder. J. E. Thompson, Galveston.
130 Treatment of Trifacial Neuralgia by Deep Alcoholic Injections. R. B. Sellers, Fort Worth.
131 Apoplexy. J. S. Turner, Dallas.
132 Essentials of Blood Pressure in Life Insurance. J. S. Lankford, San Antonio.
133 Clinical Obstetrics. H. O. Sappington, Galveston.
134 Obstetrics as Practiced by Country Doctor. J. A. Odom, Rogers.
135 Obstetric Hodge-Podge. I. L. Van Zandt, Fort Worth.
136 Some Mistakes in Obstetrics. J. H. Graves, Waco.
137 Things To Do and Things Not To Do in Obstetrics. B. G. Prestridge, Alvarado.
138 Uterine Inertia. B. H. Passmore, El Camp.
139 General Management, After Care and Treatment of Normal Labor. D. C. Homan, Oglesby.
140 Breech Presentations. T. W. Shearer, Houston.
141 Cesarean Section. W. M. Wolf, San Antonio.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

March, XIX, No. 10, pp. 339-374

1 Roentgen Radiation. A. P. Gould.
2 Roentgen Rays as Aid to Dental Diagnosis. J. Hall-Edwards.
3 Treatment of Inoperable Malignant Growths by Diathermy. E. P. Cumberbatch.

British Medical Journal, London

March 13, I, No. 2828, pp. 453-492

4 Oral Sepsis in Relation to General Disease. H. L. McKisack.
5 *Treatment of Diabetes Mellitus with Casein and Cream. R. T. Williamson.
6 Early Administration of Vaccine in Pneumonia. W. H. Wynn.
7 Action of Calcium Salts. C. O. Jones.
8 Apparatus for Roentgen Ray Localization. W. Cotten.
9 Sanitation of Camps (Sand and Water). T. Forrest.
10 Epidemic Cerebrospinal Meningitis. J. C. G. Ledingham.
11 Cerebrospinal Meningitis: Diagnosis and Prophylaxis. A. Lundie, D. J. Thomas and S. Fleming.

5. **Treatment of Diabetes Mellitus with Casein and Cream.**—Casein and cream are given by Williamson in small quantities every two hours. The patient is kept at rest in bed, or on the sofa, and every two hours, from 8 a. m. to 10 p. m., receives a glass of artificial milk prepared from casein, cream and water. One tablespoonful of casein is well mixed in a tumbler with one tablespoonful of cream until a paste is

formed; then hot water (or cold if preferred) is added gradually until the tumbler is full, the mixture being well stirred with a teaspoon while the water is being added. A white fluid is thus prepared which has the appearance of milk. It contains milk albumin fat, but only a very small percentage of milk sugar derived from the cream. The fluid may be sweetened with saccharin if desired, or a pinch of salt may be added, or it may be flavored with nutmeg, according to the patient's taste. The fluid may be taken well when it is hot, but may cause nausea when lukewarm or cold. When it produces nausea, or is distasteful even when the fluid is warm, another preparation of casein should be tried. Usually the treatment with the casein and cream causes a little loss of weight; but for a week or two if the patient rests in bed or on the sofa all day, the loss is only a few pounds. In milder cases of diabetes and in many cases of medium severity the urine becomes quite free from sugar in two or three days or in a few days, even when an ordinary rigid diabetic diet has failed to check the glycosuria. In many cases the casein treatment can be continued for two or three weeks, or a little longer, without much loss of weight and without producing much weakness or unpleasant symptoms; and the urine may be kept free from sugar during this period.

Williamson sounds a note of warning. He says that the treatment requires to be very carefully watched and the patient seen daily and the urine tested daily during the casein treatment. Though he has never had any serious bad results, it was necessary to discontinue the treatment promptly in a small percentage of the cases, owing to the onset of untoward symptoms, such as a feeling of great weakness and exhaustion, mental depression and irritability. In a few it produces dyspepsia, or diarrhea, or constipation. But in the majority of cases it can be followed quite easily and without unfavorable symptoms.

Dublin Journal of Medical Science

March, III, No. 519, pp. 161-240

12 Chronic Fixed Retroversion of Uterus: Plea for Operation. B. Solomons.
13 Theory and Technic of New Method of Radium Therapy. Report of Cases Treated During Last Nine Months. W. C. Stevenson.
14 Case of Carcinoma Uteri Benefited by Radium Emanation. J. Moore.
15 Case of Trichocephalus Dispar. H. C. Drury.

Edinburgh Medical Journal

March, XIV, No. 3, pp. 161-240

16 *Remarkable (Temporary) Condition of Pulse in Two Cases of Adams-Stokes' Disease with Heart-Block. B. Bramwell.
17 Alcohol Poison and Its Victims. J. Strachan.
18 Summary of Recent Work on Vitamines. H. L. Watson-Wemyss.
19 Case of Hunter's Freemartin in Which There Were Reversion to Wild Park Cattle Type. D. B. Hart.
20 Case of Tuberculosis Involving Hip Joint, Bronchial Glands, Lungs and Intestines. J. L. Smith.
21 Six Cases of Tuberculosis of Mamma. A. Miles.

16. **Condition of Pulse in Two Cases of Adams-Stokes' Disease with Heart-Block.**—In the two cases recorded by Bramwell as the syncopal attack passed off and before the ventricular contraction was reestablished, a very small, feeble radial pulse numbering 120 to 130 beats per minute, occurred for a brief period. Bramwell suggests that these small radial pulsations were due to contractions of the auricle and not of the ventricle. The long duration of the stage of unconsciousness in some of the syncopal attacks (more than half an hour) in the first case is remarkable.

Indian Medical Gazette, Calcutta

February, L, No. 2, pp. 41-80

22 *Is There Primary Lesion in Leprosy? A. Gwyther.
23 Studies in Malaria. H. Stott.
24 Observations at Some Hospitals at Home. G. T. Birdwood.
25 At Clinic of Lieut. Colonel Henry Smith, Amritsar. C. F. McCarthy.
26 Indications for Gastrojejunostomy Based on Eighteen Cases in Kashmir Mission Hospital. A. Neve.
27 Interesting Sequelae in Case of Cholera. C. Milne.
28 Influence of Atmospheric Temperature on Sand-Fly Fever. W. O. Walker.

22. **Is There Primary Lesion in Leprosy?**—From an analysis of over 500 cases Gwyther concludes that there is in leprosy a primary lesion which appears some considerable time before the generally accepted manifestations of the disease, but is unfortunately so small and insignificant as to have been overlooked. This primary lesion usually takes the form of a patch of anesthesia, a small blister, or the two combined. Blisters account for 35.67 per cent. of the cases; anesthesia for 24.14 per cent.; hyperesthesia for 16.05 per cent.; ulcers for 5.50 per cent., while macula and tubercles amount to 10.55 per cent. It occurs most frequently in those parts of the body which are, from anatomic reasons, most exposed to injury. The feet are affected in 52.76 per cent.; hands in 8.04 per cent. There is a definite period of time between it and any secondary manifestation, varying with the type of the disease. In many cases there are distinct rigors between the primary and secondary manifestations which are peculiar in being unaccompanied by rise in temperature. The secondary manifestations appear either rapidly or slowly and gradually, according to the type of the disease.

As to the etiology of the disease and source of infection Gwyther's investigations lead him to believe that there is little evidence of direct infection in any way from a diseased person to a healthy one, so that he cannot help thinking that the disease is one of locality, viz., that there must be local conditions of soil-water or whatever the factor may be, which favors the intensification of the virulence of the disease, or else that there is a missing cycle in the life-history of the causative organism which local conditions favor. He suggests it is possible that the causative agent of the primary lesions is of the nature of a streptothrix, and that the acid-fast types found in the secondary stages, or the developed disease may prove to be a sporular development.

Journal of Tropical Medicine and Hygiene, London

March 1, XVIII, No. 5, pp. 49-60

29 Tinea Capitis Tropicalis in an Egyptian Soldier Caused by Trichophyton Discoides Sabouraud, 1909. A. J. Chalmers and A. Marshall.
30 So-Called Parasite of Yellow Fever. C. M. Wenyon and G. C. Low.

Lancet, London

March 13, I, No. 4776, pp. 533-582

31 *Operative Treatment of Cleft Palate. H. Blakeway.
32 Outbreak of Toxic Jaundice Due to Tetrachlorethane Poisoning. W. H. Willcox.
33 *Unusual Rupture of Mitral Valve. A. M. Kennedy and J. B. McDougall.
34 Surgical Notes on Serious Head Injuries. A. G. Whitehorne-Cole.

31. **Operative Treatment of Cleft Palate.**—Results in 100 consecutive cases treated by Lane's operation are cited by Blakeway. These patients were operated on between April, 1905, and January, 1907. Of these 100 cases 87 have been traced, and of these 40 have been seen; 1 of these has since died. Of the remaining 47 patients, 33 are dead, and in 14 the result of the treatment was ascertained by correspondence. The ages of the patients at the time of the first operation varied from 1 day to 11 years, but 79 of the children were under the age of 1 year. The cases showed the following degrees of severity: Complete cleft of hard and soft palates, 35 cases; cleft of soft and part of hard palate, 45 cases; cleft of soft palate only, 11 cases; congenital central cleft of palate, 1 case. In the remaining 8 cases the extent of the cleft was not stated in the notes and could not afterward be determined.

Of the children 33 died. Of the 33, 19 deaths are judged to have been due to the operation; 13 of these resulted from first operations and 6 from second or later operations. For complete clefts there were 35 primary operations, with 5 deaths, or 14.28 per cent., 33 secondary operations, with 3 deaths, or 9.0 per cent. For clefts of soft and part of hard palate there were 45 primary operations, with 6 deaths, or 13.3 per cent., 39 secondary operations, with 1 death, or 2.56 per cent. For clefts of soft palate there were only 11 primary operations with 1 death, or 9.0 per cent. The secondary operations for clefts of the soft palate were too few for conclusions to be drawn from them. One death from a primary

operation and one after a secondary one occurred in cases in which the extent of the cleft was not stated in the notes. In 9 cases death took place shortly after the child had returned home. Among 44 first operations for all varieties of cleft, under the age of 3 months, 9 were fatal, a percentage of 20.45; whereas of 56 first operations on children over that age only 4 resulted fatally, a percentage of 7.14. Of lesser complications 2 cases of recurrent hemorrhage occurred.

As regards closure of the cleft: The results in 40 cases were as follows: (*a*) Fifteen cases of complete cleft of hard and soft palates: Complete closure, after one operation 3, after more than one operation 4. Partial closure, after one operation 2, after more than one operation 6. (*b*) Nineteen cases of cleft of soft and part of hard palate: Complete closure, after one operation 4, after more than one operation 4. Partial closure, after one operation none, after more than one operation 4. Failure after one operation 1, after four operations 1. (*c*) Six cases of cleft of the soft palate only: Complete closure after one operation 3. Partial closure after one operation 3. Several of the cases described as "partial closure" have only small holes left, the rest of the palate being completely healed. After discussing other methods of operation Blakeway concludes that Langenbeck's operation is still the best for routine use. The experience of the operator, the width of the cleft, together with the height of the palatal arch and the general health of the child, have all to be considered before a decision is reached. If the condition is complicated by the presence of harelip, closure of the latter during the first few weeks of life has a valuable effect in causing obliteration of the most anterior part of the cleft.

33. **Unusual Rupture of Mitral Valve.**—The case recorded by Kennedy and McDougall was one of malignant endocarditis, not valvular but mural, in which inflammatory reaction in the cardiac tissue at the base of the mitral valve was so acute that necrosis occurred and the cusps were torn off from their attachments to the wall.

Bulletin de l'Académie de Médecine, Paris

February 23, LXXIII, No. 8, pp. 261-287

35 *Importance for Diagnosis and Prognosis of Electric Tests of Compressed or Severed Nerves. M. Mendelssohn.
36 Efficacy of Polyvalent Serum for Direct Application to Wounds. (Sur le traitement sérique spécifique des plaies.) Leclainche and Vallée.
37 Advisability of Postponing Operations for Cataract on Soldiers in the Active Army. (Des opérations inopportunes sur les blessés de guerre.) E. Valude.
38 *Differential Diagnosis of Typhoid, etc., by Microscopic Examination of the Blood. (Etude du sang pur appliquée au diagnostic de la fièvre typhoide et d'autres maladies infecticuses.) D'Oelsnitz and Others.

March 2, No. 9, pp. 289-312

39 Metal Spring Tourniquet. (Ressort métallique hémostatique.) A. Monprofit.
40 Metal Disk for Amputations; Pushes Back Soft Parts and Leaves only Bone Protruding. (Des rétracteurs metálliques pour amputation.) A. Monprofit.
41 *Hour-Glass Stomach Following an Ulcer; Forty-One Cases. (Sténose mésogastrique d'origine ulcéreuse.) A. Mathieu.
42 Antitetanus Serum and Chloral in Treatment of Tetanus. L. Spillmann and A. Sartory.
43 *Fungus Infection of Wounds. (Certaines mycoses de blessures de guerre et leur traitement.) E. Rouyer and J. Pellissier.
44 Protection Conferred by Vaccination against Typhoid. P. Carnot and others.

35. **Electric Tests of Injured Nerves.**—Such articles as this by Mendelssohn, based on practical experience with large numbers of nerves injured in war, throw light on the question whether electric tests can be applied to the nerve after the skin wound has healed or whether it is necessary to open up the region to apply the test directly to the nerve. He refers to the faradic and galvanic currents alone, as the more complicated technics are seldom accessible to the army surgeon. The reaction of degeneration in the muscles is purely a muscular phenomenon, but, when a nerve is injured, every muscle tributary to this nerve should be examined for the slightest tendency to the reaction of degeneration. On the whole, he concludes, the electric tests are only relatively instructive in regard to diagnosis of the nerve trouble but they are extremely important for the prognosis. An exploratory incision can be reserved for exceptional and complicated cases in which the usual tests give inadequate responses, as he describes in detail.

38. **Microscopic Examination of the Blood in Differentiation of Typhoid.**—The findings in large numbers of typhoid cases were constant: A thin layer of blood under the microscope showed invariably subnormal numbers of leukocytes and no visible fibrin network. With pneumococcus affections the fibrin network is prominent and there is hyperleukocytosis. The reds also cluster closer together with the latter, with smaller open spaces between.

41. **Hour-Glass Stomach from Ulcer.**—Of Mathieu's forty-one cases during the last six years, in 11 the constriction was merely the result of spasmodic contraction of the mesogastrium as was demonstrated by an operation in 3 cases and in the others by the return of the stomach to normal shape either spontaneously or under atropin or belladonna. In 10 of the cases the ulcer had existed over twenty years; in 11 from five to fifteen years, and only in 9 instances was the interval less than five years. All but 10 of these patients were women. In his experience in about a thousand cases of simple gastric ulcer, the female patients outnumbered the male two to one. The diagnosis of an hour-glass stomach is not difficult, but it is important to ascertain to what extent spasmodic contracture participates in the constriction, and whether pyloric stenosis accompanies it.

43. **Fungus Infection of Wounds.**—Rouyer has encountered a number of cases of actual mycosis of the tissues after a shell wound. Ordinary antiseptics had no influence on it and healing was long retarded until he abandoned tincture of iodin for formaldehyd or a stick of copper sulphate with which he cauterized the edges of the wound. In one case the fungus was identified as the *Saccharomyces tumefaciens*.

Presse Médicale, Paris

February 25, XXIII, No. 8, pp. 57-64

45 War Deafness. (La surdité de guerre.) M. Lermoyez.
46 *Wounds of Nerves. (Etude médico-chirurgicale des blessures des nerfs.) J.-A. Sicard and others.

March 4, No. 9, pp. 65-72

47 *Clinical and Anatomic Conditions in One Hundred Cases of Gunshot Wounds of Nerves in the Limbs, and Outcome of Treatment. H. Claude and others.
48 Treatment of Typhoid Fever. (Un traitement pratique de la fièvre typhoide aux armées.) Gay.
49 Localization of Foreign Bodies by Radioscopy. Debierne.

46. **Wounded Nerves.**—This article reports the results of the collaboration of an expert neurologist, histologist, electrologist and surgeon. Among the large number of wounded in their care they have been able to trace to date forty-two operated on for injury of peripheral nerves. The injury dated from three to over five months before and the wound had healed aseptically. When there was merely persisting pain in the nerve they injected into the nerve itself 2 or 3 c.c. of some weak anesthetic or merely air. This distends and stretches the nerve and generally answers every purpose.

No operation is attempted when by the third month a paralyzed limb has regained some motor functioning unless special circumstances call for operative measures. When an operation is deemed necessary and the nerve is exposed, it may seem entirely normal; its lack of functioning is a kind of stupor. It can be roused to normal functioning by injection into the nerve trunk of 1 or 2 c.c. of a 1 per cent. solution of methylene blue or by injection of air. The latter is useful also as a preliminary to an operation on the nerve itself. Before attempting the latter, they examine under the microscope a minute particle snipped from the nerve, and complete the exploration with electric tests. Operate, release the nerve from everything binding it down, but never resect—these are the principles followed. Success was realized only with paralyzed arms; no benefit has been realized to date from any operations of the kind on the sciatic nerve, not even in cases in which the nerve did not seem to be seriously injured.

47. **Operative Treatment of Wounds of the Nerves.**—During the last three months the neurologic service organized in the eighth district for the wounded has had 400 cases in its charge and operative treatment was applied in 100. The immediate results were strikingly good and the improvement has continued to progress as the patients are reexamined day after day. In 45 cases more than one nerve was involved in the injury; in nearly all the cases the time interval since the wound ranged from three to five months. The operative measures were conservative in the extreme; the principal aim was always to liberate the nerve and mobilize it in sound tissue. No attempt at suturing was made except as a last resort when the continuity of the nerve had been entirely interrupted. Several illustrations are given of the more common type of injury, the binding down of the nerve by cicatricial tissue after it had been nearly cut across.

Berliner klinische Wochenschrift

February 22, LII, No. 8, pp. 173-200

50 *Analysis of Flours by Means of Stains. (Farbenanalyse des Brotes.) C. Posner.
51 *Psychoses during the War. (Wesen und Bedeutung der Kriegspsychosen.) K. Singer.
52 *Tetanus. (Meine Beobachtungen über Tetanus im Frieden und im Felde.) Grundmann.
53 Emergency Tracheotomies. (Nottracheotomien.) V. Thom.
54 Biologic Action of Condensed Radium Emanation. E. Partos.
55 Intermittent Expiration with the Systole. (Herzsystolisch-intermittierende Exspiration und negativer Brustpuls.) C. Frugoni.
56 *Epidemics in Wartime. (Entstehung und Ausbreitung der Kriegsseuchen.) F. Hueppe. Commenced in No. 7.

50. **Differential Staining Technic for Flours.**—Posner gives several illustrations of the microscope findings with flours stained with a methylene blue-eosin contrast stain or Ehrlich's triacid stain. Potato flour takes the stain differently from cereal flours. Bread dough made with potato flour does not rise as well as wheat or rye flour dough, and the bread is less porous.

51. **Psychoses at the Front.**—Singer comments on the comparative rarity of psychoses at the front. When they occur it is generally found that the man had been under medical care at some time in his life for nervous or mental disease. He thinks this relative rarity of psychoses among the troops speaks volumes for the sound constitution, mental and physical, of the men. The deprivation of alcohol has not caused by any means the amount of disturbance that had been anticipated. In those predisposed to nervous and mental disease, however, the vicissitudes of the campaign tend to bring them rapidly to full development and even a small amount of liquor is liable to bring on delirium tremens in chronic drinkers after being deprived of alcohol for a few months.

52. **Tetanus.**—Grundmann states that since he took charge of a certain base hospital the mortality from tetanus dropped from 100 to 65 per cent., excluding the moribund cases, to 55 per cent. Many of those who recovered had an incubation of only three or five days. He ascribes these favorable results to his method of managing the cases. The main point, he says, is to recognize the first symptoms, including slight difficulty in swallowing, sweating, starting at noises, bright light or sudden drafts, and dizziness or twitching or stiffening of the muscles when they are tapped. The pulse was about 100 throughout the disease. Antitetanus serum was injected at the earliest possible moment; the tetanus patient was kept in a quiet, dark room. Every hour he was given some light digestible nourishment.

The wound was left in peace; any attempt to resect the tissues at this late stage merely opens up new blood and lymph vessel paths for toxins and bacteria. The tetanus toxin is absorbed so rapidly that any operation usually comes too late. In some of his cases a splinter of wood or scrap of cloth or straw was left in the wound and was spontaneously expelled later. He merely dressed the wound with iodoform, after cleansing with hydrogen dioxid, and injected around the wound 80 or 100 antitetanus serum units to catch the toxin as it spread, repeating this for several days. An intravenous injection of the serum was made daily also to neutralize the toxin in the blood, supplemented the first and third day by lumbar intraspinal injection of the same amount. He never witnessed any signs of anaphylaxis even when a total of 150 units had thus been administered for several days in succession.

He is convinced that most of the deaths from tetanus are due to the excessive accumulation of waste products in the muscles from their intense and prolonged contraction. This is combated best with magnesium sulphate, and he uses this freely. He never witnessed any disturbance in breathing or any respiratory paralysis although he makes a practice of injecting subcutaneously three or four times a day, 20 c.c. of a 10 or 15 per cent. solution until the muscular contractions and rigidity have subsided. It is necessary to begin with tentative doses, not over 5 c.c., and increase them until slight general anesthesia is induced. A dose of 5 c.c. of a 5 per cent. solution of calcium chlorid or 1 mg. of physostigmin is kept at hand to use at need. He never ventured to inject the magnesium sulphate into a vein or into the spine. The antitetanus serum treatment is kept up for from four to seven days. In conclusion he warns that a tent cloth or blanket should be thrown over straw before a wounded person is laid on it. Also that the wounded lying next to one with tetanus should be given a preventive injection of serum. He had two cases of tetanus develop in a crowded ward sixteen and twenty days after the men had entered it.

56. **Epidemics in War.**—In concluding this long sketch of the history and present status of epidemics in war time, Hueppe remarks that it is an interesting question now to learn how the simultaneous inoculations against smallpox, typhoid and cholera, possibly also against dysentery and tetanus, are going to influence each other; whether they will reenforce or attenuate each other.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 27, XLV, No. 9, pp. 257-288

57 Roentgenotherapy in Gynecology. (Bisherige Erfahrungen und Resultate aus dem Röntgeninstitut der Universitätsfrauenklinik Bern.) M. Steiger. Concluded in No. 10.
58 Severe Toxic Symptoms in Kidneys, Bladder and Urethra after Wearing Porous Plaster for Two Weeks. (Intoxikation der Harnwege nach Allcock's Porous Plaster.) A. Guth.

Deutsche medizinische Wochenschrift, Berlin

February 25, XLI, No. 9, pp. 241-272

59 *Acid Agglutination Test for Typhoid Bacilli. (Die praktische Verwertbarkeit der Säureagglutination für die Erkennung der Typhusbazillen.) L. Michaelis.
60 The Dietary for a Workingman in the City. (Ernährung grosstädtischer Arbeiter und Eiweissbedarf des Menschen.) F. Hirschfeld and M. Rubner.
61 *Arrest of Respiration after Intraspinal Injection of Neosalvarsan. (Lähmung des Atmungszentrums im Anschluss an eine endolumbale Neosalvarsaninjektion.) J. Lewinsohn.
62 Tetany in Course of Gallstone Colic. G. Graul.
63 Wounds of the Brain and Spinal Cord in War. (Beobachtungen an Schussverletzungen des Gehirns und Rückenmarks.) Goldstein.
64 Wounds of Peripheral Nerves in War. S. Auerbach.
65 Gas Phlegmons. G. Seefisch.
66 Dangers of the Plaster Cast, and Effectual Substitute. (Die Gefahren des Gipsverbandes.) A. Philippsthal and S. Rummelsburg.

59. **Acid Agglutination as Test for Typhoid Bacilli.**—Michaelis declares that the acetic-acid agglutination method, to which he called attention in 1911, is proving instructive for differentiating typhoid. The findings are said to be more constant and reliable than with any other technic. It is based on the fact that bacteria are agglutinated by acetic acid, the quantity of acid required for the purpose differing for different species of bacteria. This optimal acid concentration is sharply defined in case of typhoid bacilli and thus serves to differentiate them.

61. **Paralysis of Respiration Center After Lumbar Injection of Neosalvarsan.**—Lewinsohn had made sixteen injections of the kind in eight patients with general paralysis or tabes, without mishap, when a severe and nearly fatal arrest of the respiration occurred twenty-four hours after intraspinal injection of 6 c.c. of a solution of 0.15 c.c. of neosalvarsan in 300 c.c. of saline. After an hour and a half of artificial

respiration the man breathed spontaneously for five minutes and consciousness returned. He was urged to breathe deep, and kept this up volitionally, sustained by occasional artificial respiration for two hours, without any automatic breathing. Whenever he forgot to breathe, all respiration ceased and his attention had to be recalled to it by slapping his chest and arms. By the end of the fourth hour the danger seemed past; the man was breathing well. After eight hours there was a brief cessation of breathing and the pulse stopped also, but under artificial respiration, camphor and caffein they returned apparently to normal. As soon as he dropped to sleep he stopped breathing, and had to be wakened and urged to breathe deep. Finally, after over twelve hours had elapsed, he got several hours of normal sleep and had no further respiratory disturbances.

The patient was a man of 40 with signs of tabes for four years. A severe gastric crisis had followed in the night after the injection of neosalvarsan. To relieve this, 0.02 c.c. morphin had been given and this may have reduced the excitability of the respiration center below the safe level under the conditions. Foerster has reported a case of spontaneous arrest of the respiration in a case of tabes; the attacks of apnea recurred three times in one month and each lasted about half an hour. Stimuli applied to the skin brought the patient out of it each time. He has also had a case in which the man stopped breathing and became unconscious after 0.01 or 0.015 c.c. morphin had been given to relieve a gastric crisis. Only by artificial respiration, kept up for hours, was the patient tided through the dangerous attacks. In this case also the man responded to urging to breathe deep when there was no automatic respiration. Lewinsohn refers in conclusion to a number of similar cases mentioned at the last annual meeting of the A. M. A., adding that these experiences warn of the necessity for extreme caution with intraspinal injections in tabetics.

Internat. Monatsschr. f. Anat. u. Physiol., Leipzig and Chicago

XXXI, Nos. 7-9, pp. 305-436. Last indexed January 23, p. 375

67 Comparative Physiology of the Cerebellum. (Ricerche sulla Fisiologia comparata del cervelleto.) O. Polimanti.

68 The Process of Horn Production in the Nails. (Della corneificazioni dell'unghia.) L. Martinotti.

69 Crossing of the Nerves of Taste. (Chiasma gustativo—periferico—nella lingua dell'uomo e di alcuni mammiferi.) G. Vastarini-Cresi.

70 Influence of Ultraviolet Rays on the Regeneration of the Pigment Apparatus in the Skin of Tritons. (L'influenza dei raggi ultravioletti sulla rigenerazione dell' apparato pigmentario della cute dei Tritone.) L. Torraca.

Medizinische Klinik, Berlin

February 21, XI, No. 8, pp. 207-236

71 *Indigestible Food and Chilling of the Abdomen as Factors in Diarrhea. (Zusammenhang von gutartigen Durchfällen mit dem Genusse schwerverdaulicher Nahrung und mit Abkühlung des Bauches.) A. Schmidt.

72 *Ultraviolet Rays in Treatment of Suppurating Wounds. (Behandlung eiternder Wunden mit künstlicher Höhensonne.) A. Mayer.

73 *Roentgen Treatment of Severe Fractures. (Zur Heilung von schweren Knochenbrüchen mittels Röntgenreizdosen.) M. Fränkel.

74 *Care of Surgical Instruments in the Field. (Sterilisierung und sterile Aufbewahrung chirurgischer Instrumente im Kriege.) K. Gerson.

75 Ovary and Testicle Extracts in Treatment of Impotency. (Zur Behandlung der sexuellen Insuffizienz.) I. Bloch.

76 Apparatus for Determining the Carbon Dioxid Tension in Alveolar Air. (Klinische Methode zur Bestimmung der Blutalkaleszenz.) O. Forges and A. Leimdörfer.

77 *Gonorrheal Arthritis. (Die gonorrhoischen Gelenkentzündungen.) O. Nordmann.

71. **Diarrhea and Chilling of the Abdomen.**—Schmidt remarks that intestinal trouble is far less prevalent among the German troops in this war than in any previous campaign. He ascribes this in large part to the excellent arrangements for feeding the troops, the motor-truck "field kitchens." But even these cannot always keep up with the troops, and defectively cooked food often sets up acute gastric indigestion. When the bowels are thus upset, chilling of the abdomen is liable to exaggerate peristalsis and bring on diarrhea. Consequently he emphasizes the necessity for wearing a warm woolen band around the abdomen when there is a tendency to diarrhea. Such persons are generally dyspeptic, with insufficient gastric secretion or excessive motor functioning in stomach and bowel. The healthy should not wear an abdominal band as it has no prophylactic action in regard to dyspeptic diarrhea, and those with sensitive bowels should wear it only while the tendency to diarrhea persists.

72. **Ultraviolet Rays in Treatment of Superficial Suppurating Wounds.**—Mayer has been very favorably impressed with the unusually rapid healing and subsidence of the pain when suppurative wounds were systematically exposed to the mercury vapor lamp. The penetrating power of the rays is greater in diseased tissues, especially when the limb is raised to expel the blood. The skin is a living organ with physiologic functions and these functions are materially promoted by the ultraviolet rays. Mayer is not so enthusiastic as Kromayer who asserts that the mercury vapor lamp will save the wounded thousands of weeks of hospital treatment. Mayer has found that fluorescent substances, such as eosin, seem to sensitize the tissues and then they respond more readily to ultraviolet rays; it is his routine practice now to swab the suppurating surface with a solution of eosin preliminary to applying the rays. It may be possible, he adds, to treat peritonitis in this way, applying the rays when the abdomen has been opened; he is now experimenting in this line. Friedberger reported last year the successful application of the ultraviolet ray in disinfection of the throat preliminary to operative treatment, and in diphtheria.

73. **Stimulating Doses of Roentgen Rays for Tardy Healing of Fractures.**—Fränkel cites Bernhard's statement that burns heal in his mountain district remarkably early, the sunshine and the dry air evidently promoting the healing. Aimes found that an extensive burned area, which for months had refused to heal, soon healed completely under exposure to the direct sunlight. These and similar experiences by others justify the application of the chemical rays in all old torpid lesions. Fränkel applied stimulating doses of the Roentgen rays in several cases of old fractures that refused to consolidate. The patients were four children, three women between 18 and 35 and two men of 33 and 46. The results confirm the value of the chemical rays in starting the regeneration of bone tissue and promptly healing the fracture. The dosage in such cases must be merely stimulating, as the tissues are otherwise sound and their further growth must not be interfered with.

74. **To Sterilize Instruments and Keep Them Ready for Use.**—Gerson, for a period of one minute, wipes off the blade with cotton dipped in tincture of soap, and then repeats the procedure with fresh cotton. Each blade is then wrapped separately in fresh cotton dipped in the tincture of soap, and the instrument is laid away ready for use at once or even after an interval of several weeks. This method has stood the severest tests, he says, and proved entirely satisfactory in fifteen years' experience with it.

77. **Gonorrheal Arthritis.**—Among the characteristic features of gonorrheal joint trouble is that the smaller rather than the larger joints are usually affected. If the gonorrhea is in a chronic or symptomless stage, there may be difficulty in differentiation. When only one joint is affected, gonorrhea should always be suspected and the vaginal or uterine secretions examined for the gonococcus. The sudden stormy onset, the extreme painfulness and tenderness and the consequent inability to sleep are characteristic, as also the failure of the salicylates in treatment. No drugs give any relief; reliance must be on active hyperemia, immobilization, extension and superheated air. The constricting band to induce obstructive hyperemia should be worn for twenty hours at a time. It should never be tight enough to make the limb look bluish. The limb should be raised on cushions. The relief from pain with this stasis hyperemia is so great that the patient frequently clamors to have the band applied again before the four-hour interval is concluded. If this fails, a plaster cast will usually relieve the pains at once. After eight or ten days at farthest it should be removed for part or all of the time, and the limb be passively exercised to

keep the muscles in tone. When the pain will not yield to anything else, it may subside under extension.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

March, XLI, No. 3, pp. 189-284

78 *Post-Partum Hemorrhage. (Behandlung der Blutungen in der Nachgeburtszeit.) P. Zweifel.
79 Extra-Uterine Pregnancy. B. Hada.
80 The Distribution in the Tissues of Colloidal Metals after Intravenous Injection as Revealed by the Ultramicroscope. (Dunkelfelduntersuchungen über das Schicksal intravenös injizierten kolloidalen Silbers.) J. Voigt.

78. **Management of Hemorrhage Post Partum.**—Zweifel describes a number of practical measures to arrest hemorrhage when the uterus walls are not elastic enough to contract. When the labor contractions are weak, the atony of the uterus walls, revealed by this, persists after delivery and the hemorrhage keeps up unchecked, but there is no hemorrhage so long as the child is still in the uterus and the placenta is still adherent. Hence the imperative rule to delay the expulsion of the child until the uterus walls can be toned up by mechanical, thermic, chemical or electric means. If hemorrhage keeps up unduly after delivery, it must be arrested as speedily as possible, and he has found bimanual extragenital massage of the uterus a useful method. The left hand, with nails cut short, is worked straight down between the symphysis and the uterus, pushing the cervix firmly back against the sacrum, while at the same time, with the back of the hand and fingers, the uterus is pushed upward against the right hand which grasps the body of the uterus above and rubs and presses it, thus effectually massaging the organ. This procedure is easily and rapidly done unless there is too much fat in the abdominal walls. Working the left hand down in this way between the symphysis and uterus serves a second purpose also, as it shows whether or not the after-birth is loose. If it has become detached, the umbilical cord is generally pushed out of the vagina by this manipulation, while, if the placenta is still attached, the protruding cord is drawn in again by it.

As the uterus is being thus massaged, hot water 49 C. (120 F.) should be prepared, containing two teaspoonfuls of salt to each liter. Water alone dissolves blood corpuscles and thus checks coagulation. Hemorrhage from atony of the uterus is generally arrested in fifteen minutes by the massage, thermic and drug stimulation. If it keeps up, or recurs after this, there is probably some internal injury, and Zweifel advises constricting the waist according to the Momburg procedure. This leaves the physician's hands free for internal examination. If the uterus is contracting and still the bleeding continues, it must come from some artery and this must be sought and ligated or the opening drawn up with a thread. Zweifel declares that if the os is completely dilated at delivery there can be no laceration of the cervix. It is better, he adds, to wait for complete dilatation, using inflatable bags or even cutting the cervix; this is better than letting it tear. If the finger feels a slit in the cervix, the edge each side is seized with forceps. This arrests the hemorrhage and permits the edges to be sutured together between the forceps, which are not removed until the catgut is ready to be tied. Three illustrations are given to show the exact technic of the measures advised. When the uterus has to be tamponed, he has found most useful a purified tincture of ferric chlorid, made by evaporating the officinal tincture and redissolving it in distilled water to its former volume. Gauze dipped in this arrested hemorrhage, even in merely a 5 per cent. solution, better than anything else he ever tried, and it is not caustic. It can be made up fresh for each case, the dried residue keeping well.

Münchener medizinische Wochenschrift, Munich

February 16, LXII, No. 7, pp. 217-248

81 *Unusual Course and Complications of Vincent's Angina. (Plaut-Vincentsche Rachen- und Mundentzündungen.) F. Reiche.
82 *Intradural Tuberculin Treatment in Tuberculous Meningitis; Three Cases; Recovery in Two. J. Bacigalupo.
83 The Food Supply during the War. (Die Volksernährung im Krieg.) W. Hanauer.
84 Importance and Treatment of Venereal Disease in the Active Army. (Geschlechtskrankheiten im Felde.) Lenzmann.
85 Any Dysenteriform Disease Confers Agglutinating Properties on the Serum. (Warum die Gruber-Widalsche Probe zurzeit für die Typhusdiagnose unverwendbar ist.) A. Wolff-Eisner.
86 Technic and Immediate Results of Inoculation against Typhoid. (Beobachtungen bei der Typhusschutzimpfung mit dem Russelschen Impfstoff.) H. Stieve.
87 Desiccated and Pulverized Cultures of Tetanus Bacilli Killed by Heat as Local and General Preventive of Tetanus. M. Piorkowski.
88 Operative Treatment of Aneurysms. G. Hotz and Harass.
89 Surgical Work at a Field Hospital. (Unsere operative Tätigkeit im Feldlazarett.) H. Flörcken.
90 Conservative Efforts in Military Surgery. E. Grunert.
91 Localization of Foreign Bodies by Radioscopy. (Praktische Erfahrungen mit der Fürstenauschen Lokalisationsmethode von Geschossen.) O. Weski.

February 23, No. 8, pp. 249-288

92 The Healing Process with a Natural Pneumothorax as Watched in the Tuberculous Lungs of a Young Man. H. Rieder.
93 *Autogenous Serotherapy in Infectious Diseases. (Ein neues Prinzip der Serumtherapie bei Infektionskrankheiten.) H. Koenigsfeld.
94 *Nerve Blocking for Normal Childbirths; 225 Cases. (Novokainanästhesie bei normalen Geburten.) K. Bollag.
95 The Muscular System. (Neue Versuche zur Theorie der Muskelmaschine.) V. Weizsäcker. Commenced in No. 7.
96 Treatment of Nervous Disease of Syphilitic Origin. (Das Problem der Therapie der syphilogenen Nervenkrankheiten im Lichte der neueren Forschungsergebnisse.) M. Nonne. Concluded in No. 9.
97 Military Surgery Now and Forty-Five Years Ago. (Kriegschirurgie früher und jetzt.) H. Fehling.
98 Wounds of the Eye and Orbit in War. (Kriegsschädigungen des Auges.) H. T. L. Oloff and F. Salzer.
99 Siphon Device for Draining Deep Wounds. (Dauerdrainage tiefer Wundhöhlen.) K. Weiler and Krecke.
100 Devices for Restoring Function to Stiff Joints. (Mobilisierung versteifter Gelenke.) F. Schede and C. Walter.
101 Basophil Granules in the Blood Corpuscles as Sign of Lead Poisoning from Retained Scraps of Shells. A. Schnitter.

81. **Unusual Course and Complications of Vincent's Angina.**—Reiche has encountered 139 cases of the Plaut-Vincent angina or stomatitis in addition to the 4,052 cases of simple angina at the Hamburg Barmbeck hospital in the last twelve years. In another group of 23 cases the Vincent angina was accompanied by diphtheria bacilli which had no influence on the clinical picture. In 2 other cases the Vincent angina was superposed on diphtheria. In 2 of his more recent cases what seemed to be a pure Vincent angina ran an exceptionally severe course, terminating fatally in one. This patient was a child of 11; the stomatitis was of several weeks' standing and pernicious anemia had developed. Marked improvement had followed cleansing out the mouth with hydrogen dioxid, but it proved transient and the child died within two months. The other patient was a young woman and the Vincent tonsillitis caused severe general disturbance, with intense headache, leukopenia, eosinophilia, abducent paralysis, enlargement of the spleen and destruction of part of the soft palate. The abducent paralysis developed the twenty-sixth day but disappeared after three and a half weeks. The angina ran its course in about six weeks and complete recovery followed.

82. **Intradural Tuberculin Treatment of Tuberculous Meningitis.**—Bacigalupo thinks it is more than a mere coincidence that marked improvement followed intraspinal injection of tuberculin in an advanced stage of tuberculous meningitis. As the child had miliary tuberculosis at the same time, recovery was out of the question, but some of the brain symptoms subsided after the injection. Encouraged by this success, he applied the same treatment in two other cases of uncomplicated tuberculous meningitis, and complete recovery followed after two and three injections in the course of twenty days. Tubercle bacilli had been found in the cerebrospinal fluid in both cases. He calls attention particularly to the unusual temperature reaction to the intradural injections; the temperature dropped at once about 1 degree C. and kept low thereafter. There are only twenty-two cases on record, he says, of recovery from tuberculous meningitis, and to these he adds his two. His dosage was about that usual with other technics. He began with 1 mg. of tuberculin for the child of 3; repeating with a little larger dose after twenty-four hours, when the symptoms showed no improvement.

93. **Autogenous Serotherapy in Infectious Disease.**—Koenigsfeld regards the patient's own serum as the one to be

used in serotherapy; this contains the antibodies not only against the species of bacteria involved but also against the special strain. The autogenous serum method can be used in infectious diseases of all kinds, and the technic is simplicity itself. He has applied it in eighteen cases of typhoid; 50 or 60 c.c. of blood is drawn and set on ice. The serum is decanted after a few hours and a 5 per cent. solution of phenol is added, a drop at a time, up to 10 per cent. A daily subcutaneous injection of 2.5 or 4 c.c. of the serum was then given until the fever dropped. After five or six days blood is drawn anew for the purpose, thus not breeding a "serum-fast" strain. The results were so promising in all the eighteen cases, as also in a number of bacilli carriers, that he urges others to give the method a thorough trial. The serum cannot be expected to be effectual when taken before antibodies have had time to develop; it might be well to commence with serum from some convalescent patient.

94. **Blocking the Nerves for Painless Childbirth.**—Bollag writes from Basel to extol the benefits from direct injection of 2 c.c. of a 2 per cent. solution of novocain, injected to block the pudic nerve on each side. This technic was applied in over 225 cases and proved successful in arresting all pain in the domains innervated by the branches of this nerve. It failed in only seven cases. The needle is inserted just back of the tuberosity of the ischium, between the tuberosity and the middle of the perineum, pointing it toward the lesser sacrosciatic foramen. One of the great advantages of the method is that any laceration can be sutured at once without causing the patient the slightest pain and the entire management of the case is much easier for the obstetrician. Nothing to indicate the slightest harm from it for mother or child was detected in any instance. It does not abolish the true labor pains but it prevents all pain in the nervus pudendus region.

Zentralblatt für Chirurgie, Leipzig

February 27, XLII, No. 9, pp. 129-144

102 *Extraction of Fragments of Shells with Large Electromagnet. A. Tietze.

102. **Electromagnet for Extraction of Fragments of Shells.**—Tietze writes from a field hospital to relate how he introduced the tip of a large magnet into the crushed tissues of the brain in a recent case, through a trephine opening. At a depth of 6 cm. he heard a click and the fragment of shell, weighing 375 mg., was pulled out on the end of the magnet. The electromagnet was improvised for the purpose from the electric light and telegraph equipment of the troop.

Zentralblatt für Gynäkologie, Leipzig

February 27, XXXIX, No. 9, pp. 129-144

103 Conditions Affecting Menstruation after Operations on the Ovaries. (Menstruationsverhältnisse nach gynäkologischen Operationen.) F. Ebeler.

Zentralblatt für innere Medizin, Leipzig

February 27, XXXVI, No. 9, pp. 129-144

104 The Biologic, Chemical and Physical Factors in Vegetarian and Mixed Dietaries. (Vegetarische Küche und Fleischküche.) W. Sternberg.

Policlinico, Rome

February 21, XXII, No. 8, pp. 253-284

105 Complete Retention of Urine from Unsuspected Calculus in Prostate. (Ritenzione vescicale completa da calcolosi prostatica occulta —Ascesso consecutivo della prostata: svuotamento, guarigione.) I. Scalone.

Surgical Section No. 2, pp. 53-104

106 *Inflammation Tumors in the Abdomen. (Tumori flogistici dell addome.) G. Baggio. Commenced in No. 1.

107 *Pulsating Exophthalmos Cured by Ligation of Common Carotid. C. Silvan.

108 Retroperitoneal Abscess Perforating into the Bladder. A. Miliani.

106. **Inflammation Tumors in the Abdomen.**—Baggio gives some colored plates showing the findings in his two cases of this condition. Although anatomically it is an ordinary inflammatory process, yet clinically it is of great importance as, unless its true nature is suspected, it is liable to lead to an unnecessary operation. The main thing is to suspect that the tumor is of this character. These inflammation tumors can generally be traced to some foreign body, usually derived from the intestines, but the tumefaction does not involve the bowel directly. In only one of the 47 cases he has compiled did the tumor develop on the perforated intestine and secondarily invade the abdominal wall. In 10 cases the whole mass was excised, but 4 of these patients died on the table. The 37 other patients recovered under conservative measures or a partial operation.

107. **Ligation of the Carotid Cures Pulsating Exophthalmos.**—Silvan's patient was a girl of 16 who was thrown from a carriage and an intracranial arteriovenous aneurysm developed, causing pulsating exophthalmos. About five months after the accident the increasing exophthalmos and loss of vision compelled intervention. The common carotid was ligated on that side in time to prevent serious injury of the eye. Vision rapidly returned and the symptoms of the intracranial aneurysm gradually subsided entirely. The skull had evidently been fractured and the seventh nerve had been injured. The symptoms from this persisted unmodified by the ligation of the carotid, which put an end only to the symptoms from the aneurysm in the right internal carotid and sinus cavernosus.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 20, III, No. 8, pp. 569-640

109 *General Paralysis and Tabes. (De moderne behandeling der zoogenaamde metasyphilitische ziekten van het centrale zenuwstelsel.) B. S. de Smitt.

110 Neoplasm in Dentinal Tissues; Odontome. (Een zeldzaam kaakgezwel.) A. Nicolai.

February 27, No. 9, pp. 641-716

111 *The Fever in Pulmonary Tuberculosis. (Koorts bij longtuberculose.) H. Schut.

112 Anthropologic Studies in the East Indies. (Ethnologische opmerkingen omtrent lichaamsafwijkingen bij de inlanders van den indischen archipel.) J. P. K. de Zwaan.

113 Bilateral Pigmentation of the Cornea. (Pigmenteering van het hoornvlies.) P. J. Waardenburg.

114 Decayed Teeth and Rheumatic Pains in the Limbs. (Rheumatische (?) pijnen een gevolg van tandziekten.) D. E. Da Costa.

109. **Modern Treatment of Tabes and General Paralysis.**—De Smitt is convinced that repeated examination of cerebrospinal fluid will enable us to keep an oversight over conditions so that treatment of syphilis can be suspended or resumed as needed, and in this way the patients be saved from the development of tabes or general paralysis later in life. Even when the latter is already under way, as revealed by the cerebrospinal fluid, prompt and vigorous treatment may arrest it in its incipiency. He describes a typical case of this kind and also one of tabes. He agrees with Wechselmann that it is better not to give mercury during the course of salvarsan. No influence on the Wassermann from mercurial treatment was evident in the cases cited, but when the mercury was dropped and reliance placed on salvarsan alone the cerebrospinal fluid findings and the Wassermann reaction soon returned to normal. In conclusion he reiterates his belief that the future will see very few cases of tabes and general paralysis if general practitioners appreciate the power in their hands. They are the ones to whom the patients first apply, and the outcome may depend altogether on their diagnosis.

111. **The Fever with Pulmonary Tuberculosis.**—Schut published last year an account of experiments in which he injected substances which irritated the sympathetic nerve, such as tetrahydro-beta-naphthylamin or suprarenal extract, and in consequence most of the glycogen disappeared from the liver. On the other hand, injection of cholin, which stimulates the antagonistic nerves, was followed by an increase in the glycogen content in the liver. The mobilization of the glycogen by stimulation of the sympathetic nerve was accompanied by a rise in temperature proportional to the amount of glycogen present in the liver at the time. A report of later research was sent to the *Archives internat. de pharmacodynamie et de thérapie* but its publication has been held up by the war. In this he presented evidence that the disappearance of the glycogen from the liver is the primary phenomenon and that the consequent increase in the sugar content of the blood is the cause of the higher tem-

perature. After injection of the drug the blood invariably shows a higher content of sugar, and this hyperglycemia always precedes the rise in temperature. If the injection is repeated while there is still little or no glycogen left in the liver, no hyperglycemia follows and the temperature does not go up.

Applying to tuberculosis the facts thus learned, there is much to sustain the assumption that the tubercle bacilli or their toxins irritate the sympathetic nervous system and thus start the above mechanism to work, mobilizing the glycogen in the liver, and the resulting hyperglycemia sending up the temperature. The greater or less response of the sympathetic nervous system to irritation is thus responsible for the behavior of the temperature, and drugs which reduce the temperature are those which deaden the sensitiveness of the sympathetic nervous system or enhance that of its antagonists. In tuberculin treatment we must keep below the threshold of irritation of this nervous system.

Hygiea, Stockholm

LXXVII, No. 3, pp. 97-159

115 *Tubercle Bacilli in the Feces and Their Diagnostic Import. (Om den diagnostiska betydelsen av påvisandet av tuberkelbaciller i faeces.) H. Bergstrand.

115. **Tubercle Bacilli in the Feces.**—Bergstrand applied five different methods for showing up tubercle bacilli in the feces in 25 cases in which they were known to be present in the stools. The ether extract-centrifugation-microscope method of Schöne and Weissenfels proved far more reliable than any of the others, while the technic is much simpler. In the stools of 60 non-tuberculous persons no tubercle bacilli were discovered at any time. Examination of 110 adults revealed tubercle bacilli in the sputum much more frequently than in the feces, but in 8 cases they were found in the stools and not in the sputum. The tests were repeated three times and in this way tubercle bacilli were found in the stools in 90 per cent. of those with positive sputum findings. Only one of 20 tuberculous children examined had tubercle bacilli in the stools.

Norsk Magazin for Lægevidenskaben, Christiania

March, LXXVI, No. 3, pp. 305-416

116 *Lane's Plates in Treatment of Fractures. (Operativ behandling av benbrud.) J. Nicolaysen.

117 *Simultaneous Extra-Uterine and Intra-Uterine Pregnancy. (Samtidig extra- og intrauterin graviditet.) O. Tandberg.

118 Present Status of Rachitis, Osteomalacia and other General Diseases of the Bones. (Kort oversigt over de senere aars forskning i skelettets systemsygdomme.) A. Ingier.

119 *Thrombosis of Mesenteric Vessels. (Trombose av mesenterialkar.) R. Ingebrigtsen.

116. **Operative Treatment of Fracture.**—Nicolaysen has only favorable experiences to report from the use of Lane's plates or Lambotte's fixator. He extols the advantages of the former as he applied them in fifteen cases, and discusses the special indications for them. With recent fractures the outcome was always ideal. With pseudarthrosis there is not so good a hold, and in a few cases the lower stump twisted a little. He warns against too early exercise; function returns perfectly even after immobilization for six or eight weeks.

117. **Simultaneous Extra-Uterine and Intra-Uterine Pregnancy.**—Tandberg thinks it was a twin pregnancy, one twin developing in the uterus and one in the tube. After rupture and removal of the latter, the normal pregnancy developed to term without mishap. There are about 200 cases on record of simultaneous normal and ectopic pregnancy but only in the rarest cases was the correct diagnosis drawn. The prognosis also is graver than for an ectopic pregnancy alone.

119. **Thrombosis of Mesenteric Vessels.**—Ingebrigtsen gives the necropsy findings in six cases of this kind, and compares them with the main features of the 251 cases on record. Operative measures were applied in 91 and 18 of the patients recovered. The ages in his own 6 cases ranged from 24 to 70, with one 6 weeks' infant with transposed heart and large vessels. In 2 of the cases the thrombosis in the superior mesenteric artery occurred without symptoms—only 1 similar case is on record (Trübel). The syphilitic endarteritis had evidently developed so gradually that there was no hemorrhagic infarct. Cases of this kind must be commoner than hitherto supposed, especially in syphilitics. Collateral circulation develops in the course of the slow process and serious trouble is thus averted. Heart disease or arteriosclerosis was evident in the other cases.

The only means of relief is from an operation, and the discovery of a hemorrhagic infarct at any laparotomy should suggest thrombosis and be treated accordingly, instead of its being ascribed to some other cause. The infarct had not been diagnosed beforehand in the 19 cases with successful operative treatment. The laparotomy disclosed an aseptic venous thrombosis in most of them, and the compromised segment of the intestine was resected with the corresponding omentum. The intestine was then sutured, end-to-end, or a temporary anus was made. In Gobiet's case the length of the segment of ileum resected was 320 cm. and in MacGuire's 336 cm.; both patients were in good condition nine months later.

Ugeskrift for Laeger, Copenhagen

February 18, LXXVII, No. 7, pp. 241-286

120 *Operative and Roentgen Treatment of Cancers. J. Nordentoft.

121 Cross-Fire Roentgen Treatment of Inoperable Uterine Cancer; Clinical Recovery. A. G. Lauritzen.

February 25, No. 8, pp. 287-310

122 Fixation Abscess Treatment of Various Acute Diseases. (Behandling med Terpentinabsces.) C. de F. Licht.

120. **Roentgen Treatment of Cancer.**—Nordentoft's article was presented at a medical meeting where he demonstrated the patients whose cases he describes. His principle is either to apply the Roentgen rays before and after the operation, and again later, or to trust to exclusive roentgenotherapy. The necessity for studying which types of cancer are amenable to the rays and which are most likely to recur is the task now before us. One of the three typical cases cited is the further history of a case summarized in The Journal, Oct. 24, 1914, p. 1514. The patient is a woman of 24 who had a cancer removed from one ovary in 1912 and from the other in 1913. Multiple metastases in the abdomen subsided completely under Roentgen exposures. She was clinically well for some months but then returned with complaints of pain and tenderness in the liver region. Roentgenoscopy showed that the excursions of the diaphragm on the left were free and normal, but on the right side the diaphragm was pushed high up and held immovable there, a dark shadow filling the space below. Four exposures were made, five large fields being exposed, in the course of five days, and by the end of this time the diaphragm was free and working normally on both sides. All the abnormal shadows had disappeared except that the liver seems a little larger than usual. He gives roentgenograms of this patient.

It is only a question of time, in his opinion, when all superficial cancers will be treated with radiotherapy alone. It answers the purpose as well as, if not better than, operative treatment, while there is no resulting mutilation beyond what the growth has already induced. This applies also and with particular force to growths involving Stenson's duct. The injury to vessels, etc., from an operation in this region, the difficulty of the technic and peculiar liability to recurrence were reasons which justified him, he thought, in applying roentgenotherapy alone in a case of this kind, still in an operable stage. The results have justified his confidence. The ultimate outcome with or without operation depends in reality on the individual virulence of the cancer and whether or not it is inclined to spread, and these two factors we are unable to determine exactly beforehand or to influence. He has four patients free from recurrence from five to fifteen years after vaginal hysterectomy for advanced uterine cancer while other much more promising ones have succumbed to prompt recurrence. He declares further that if he or any members of his family develop cancer in the antrum or larynx or external genitals, he will reject operative treatment and trust in radiotherapy alone. Even in apparently the most desperate inoperable cases remarkable results are sometimes obtained.